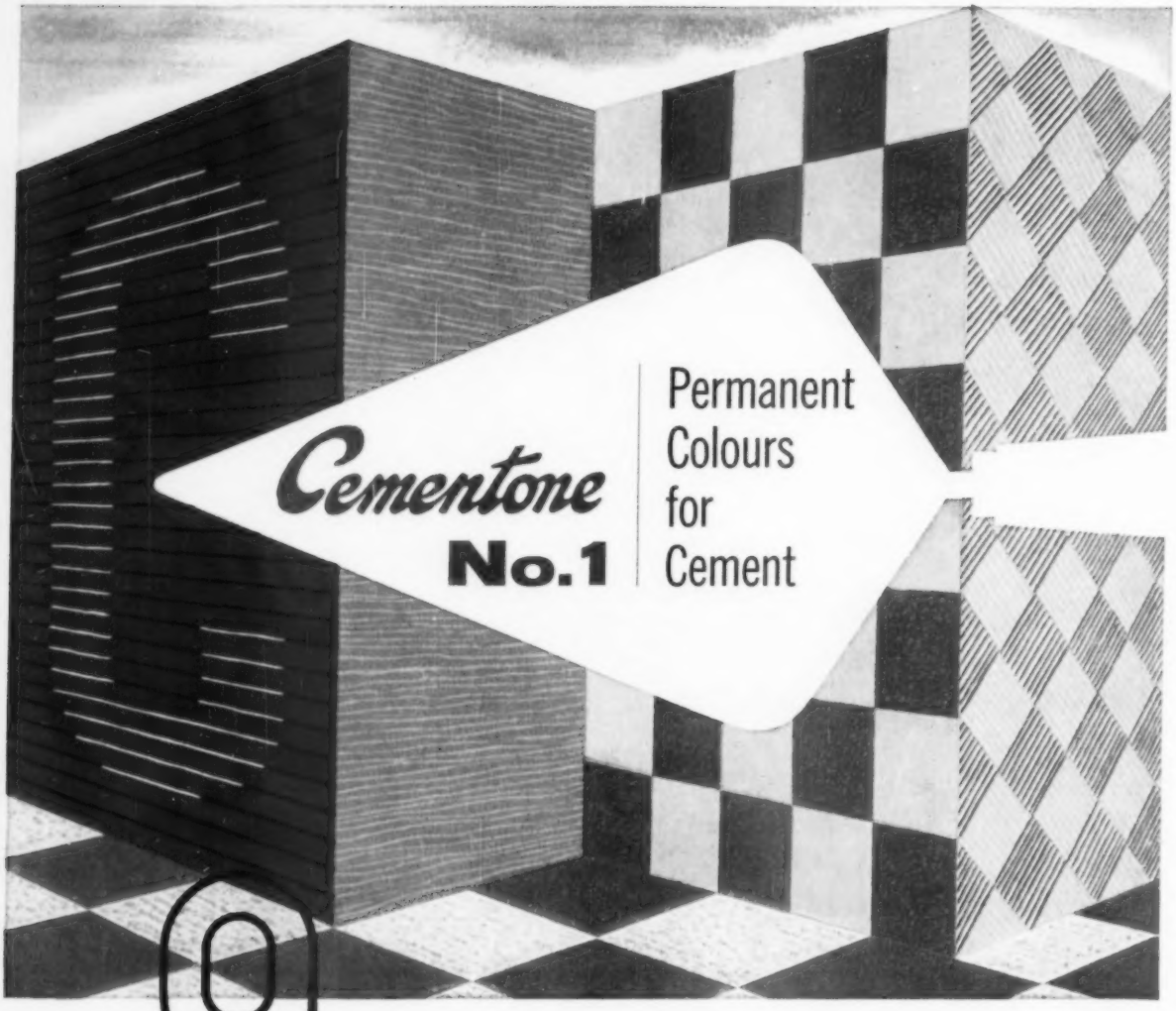
ar

THE ARCHITECTURAL REVIEW VOLUME CXXVIII NUMBER 763 SEPTEMBER 1960 FIVE SHILLINGS



THERE ARE 9 DIFFERENT **CEMENTONE PRODUCTS**

Cementone No. 1 is a Permanent Colour additive for cement and is supplied in eleven standard shades. These shades are intermixable and it is, therefore, possible to obtain an infinite variety of colours. The use of Cementone No. 1 adds new scope and dimension to concrete flooring, rendering, pointing and precast work.

Joseph Freeman Sons & Co. Ltd.
Cementone Works
Wandsworth
London S.W.18
VANdyke 2432

Cementone No. 1	Permanent Colours for Cement
Cementone No. 2	Waterproofing Powder
Cementone No. 3	Transparent Waterproofer
Cementone No. 5	Concrete Floor Binder
Cementone No. 6	Waterproof Flat Finish
Cementone No. 7	Flat and Gloss Finishes
Cementone No. 8	Concrete Hardener
Cementone No. 9	Waterproof Stoneface Composition
Cementone No. 10	Surface Tinter

H. J. Heinz Company Limited

choose Ceramic Tiles

Architect: E. D. Jefferiss Mathews, O.B.E., F.R.I.B.A., A.R.I.C.S. of J. Douglass Mathews and Partners, London.

General Contractors: A. Monk and Co. Ltd., Warrington and London.

Tile Fixers: W. B. Simpson and Co. Ltd., London, S.W.8.

. . . for complete hygiene in the Surgery, and throughout their vast new Factory at Kitt Green. ONLY Ceramic Tiles meet so completely, the stringent standards required for food processing.

Visit the Council's display of ceramic tiles, at the Building Centre, Store St., Tottenham Court Rd., W.C.1.

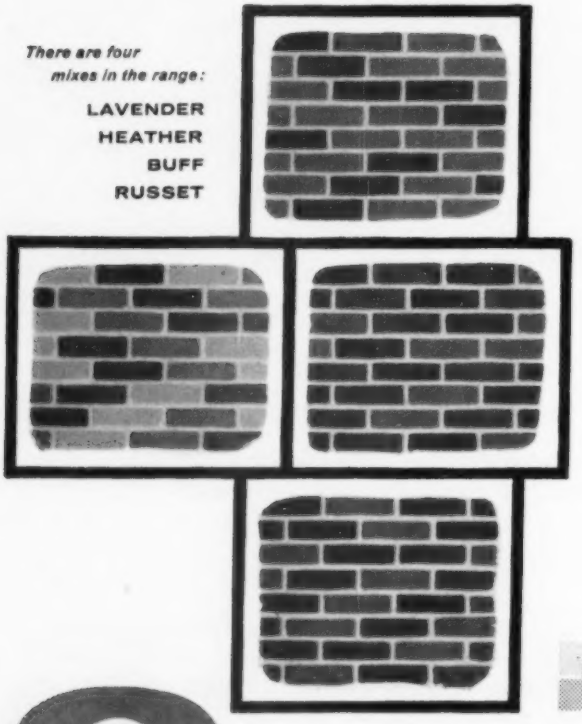
British Ceramic TILES

British Ceramic Tile Council, Federation House, Stoke-on-Trent

THINKING

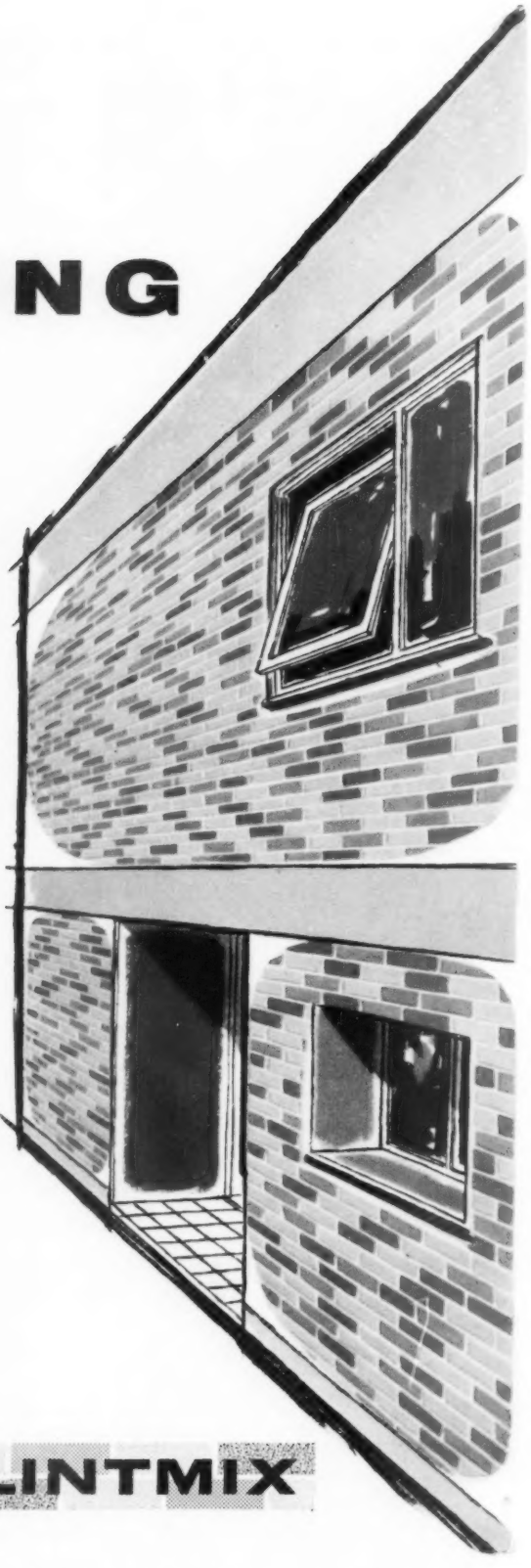
FLINTMIX

This new range of Uxbridge Flint Bricks, created by the random mixing of selected coloured facings, presents new opportunities to the Architect in the use of blended brickwork.



There are four mixes in the range:

LAVENDER
HEATHER
BUFF
RUSSET



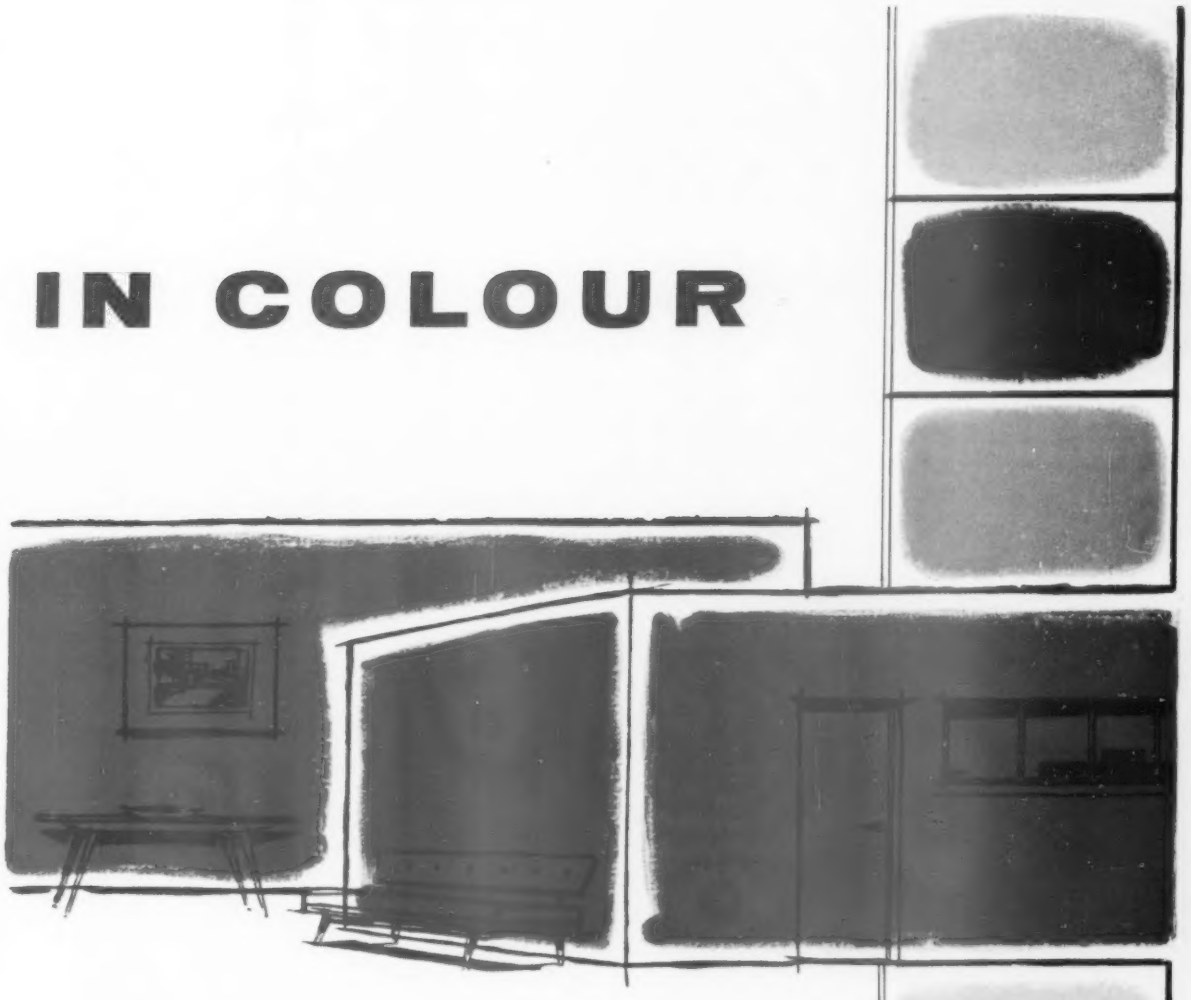
FLINTMIX

Manufactured by

CAPE BUILDING PRODUCTS LIMITED

TELEPHONE: UXBRIDGE 4313 · TELEX: 23471/UXB

IN COLOUR



POLYESTER-COATED ASBESTOLUX

Available in both external and internal grades—this range of coatings has been specially formulated to match the performance of Asbestolux itself. The finish is notable for its density, evenness of colour, thickness and exceptional durability.

The colours have been carefully selected from British Standard 2660 to facilitate harmony between adjacent surfaces.

CAPE ASBESTOLUX

The non-combustible asbestos insulation board

COWLEY BRIDGE WORKS · UXBRIDGE · MIDDLESEX

Also at: MANCHESTER · BIRMINGHAM · GLASGOW · NEWCASTLE *A subsidiary of The Cape Asbestos Company Limited*

U.B.4

This company is responsible for the design and installation of all the mechanical engineering services (twenty-two in all including full air conditioning) in the new offices of the Shell International Petroleum Company Limited on the South Bank.

Chartered Architects: EASTON & ROBERTSON, CUSDIN, PRESTON & SMITH

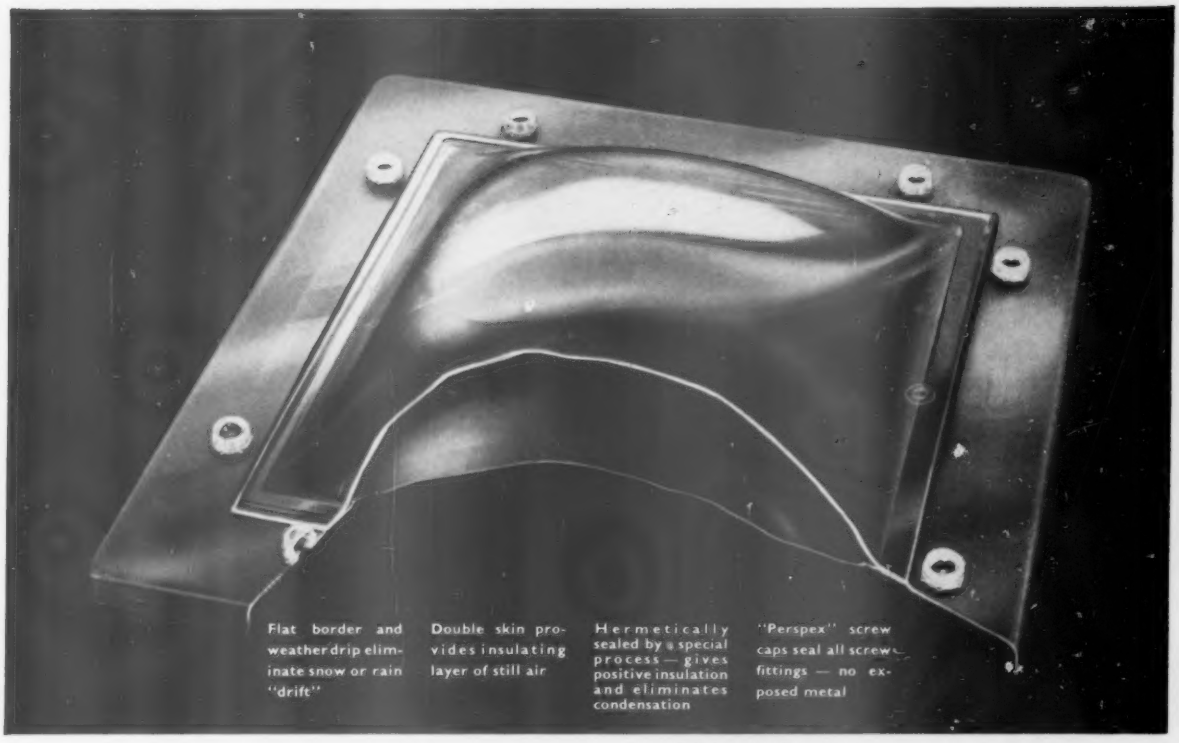
Main Contractors: SIR ROBERT McALPINE & SONS LTD.

HADEN

HEATING, AIR CONDITIONING
PIPING & SANITARY ENGINEERS

G. N. HADEN & SONS LIMITED

7/12 TAVISTOCK SQUARE, LONDON W.C.1
Other branches throughout the United Kingdom & Overseas


Flat border and weatherdrip eliminate snow or rain "drift"
Double skin provides insulating layer of still air
Hermetically sealed by a special process — gives positive insulation and eliminates condensation
"Perspex" screw caps seal all screw fittings — no exposed metal

designed daylight *PLUS* insulation at low cost!

CORDAR

ROOF LIGHTS

PATENTS PENDING

MAXIMUM LIGHT TRANSMISSION
EASILY INSTALLED
NO MAINTENANCE

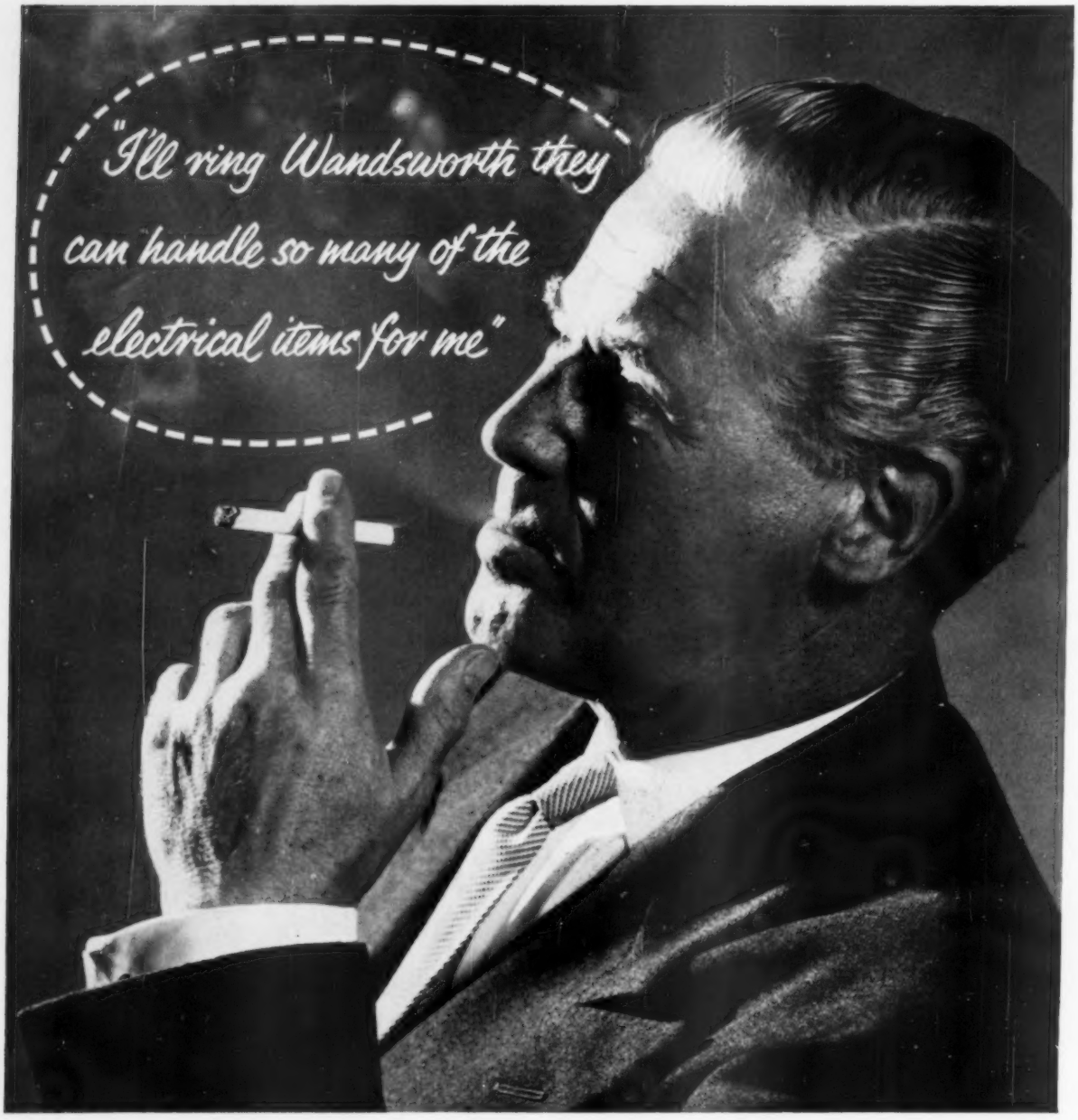
An insulated roof light is complementary to an insulated roof and CORDAR double skin 'Perspex' domes give a "U" value of .42 BTU/sq.Ft./HroF—the ideal answer to the problem of THERMAL EFFICIENCY. CORDAR provide maximum light transmission, eliminate condensation, and cut out maintenance with their exclusive featherweight design. A wide range of sizes, circular, square, rectangular.

Price Example:
3 ft. x 3 ft. dome
Single Skin—£9.0.0
Double Skin—£13.15.0

United Kingdom Atomic Energy Authority, Chapelcross Works, Annan, Dumfriesshire. Extension to Workshop and Stores Building.
Consulting Engineers: Messrs. Merz and McLellan, Newcastle upon Tyne.
Architects: Messrs. L. J. Couves & Partners, F.F./A.A.R.I.B.A., Newcastle upon Tyne.

CORDAR LIMITED 34 Dean St., Newcastle upon Tyne 1. Telephone: 26214

P1405



AT THE ELECTRICAL specification stage of planning it is reassuring to know that the Wandsworth representatives can help to decide so many details at one briefing.

Is the task a hospital with special bedhead units, and with the tricky problem of sparkless switches for operating theatres?—is it a school where robustness and reliability are paramount?—are incinerators for surgical or hygienic disposal a part of your problem?

All these and many other question marks can be erased by the Wandsworth representatives. Whether you are concerned with getting the right equipment for a specialist job or wish to be certain of the quality of units needed for a huge contract you can safely leave it to the experience and resources of Wandsworth.

Write for the Wandsworth catalogues which contain hundreds of products needed in electrical planning today.

Wandsworth

THE WANDSWORTH ELECTRICAL MANUFACTURING COMPANY LIMITED

(Dept. AR5) Albert Drive · Sheerwater · Woking · Surrey

Telephone: Woking 3506

better choose WOOD windows

Wood windows are ideal in every way for Houses, Flats, Schools, Hospitals, Offices, Factories.
Wood is functional, lasting, economical to install and maintain, and provides maximum flexibility of expression. Furthermore, wood windows reduce heat losses, sound transmission, condensation. Remember, too, with wood windows you are ensured a quick delivery. Advice on wood windows suitable for all types of buildings gladly given to all architects and surveyors.

THE ENGLISH JOINERY MANUFACTURERS' ASSOCIATION (INCORPORATED)

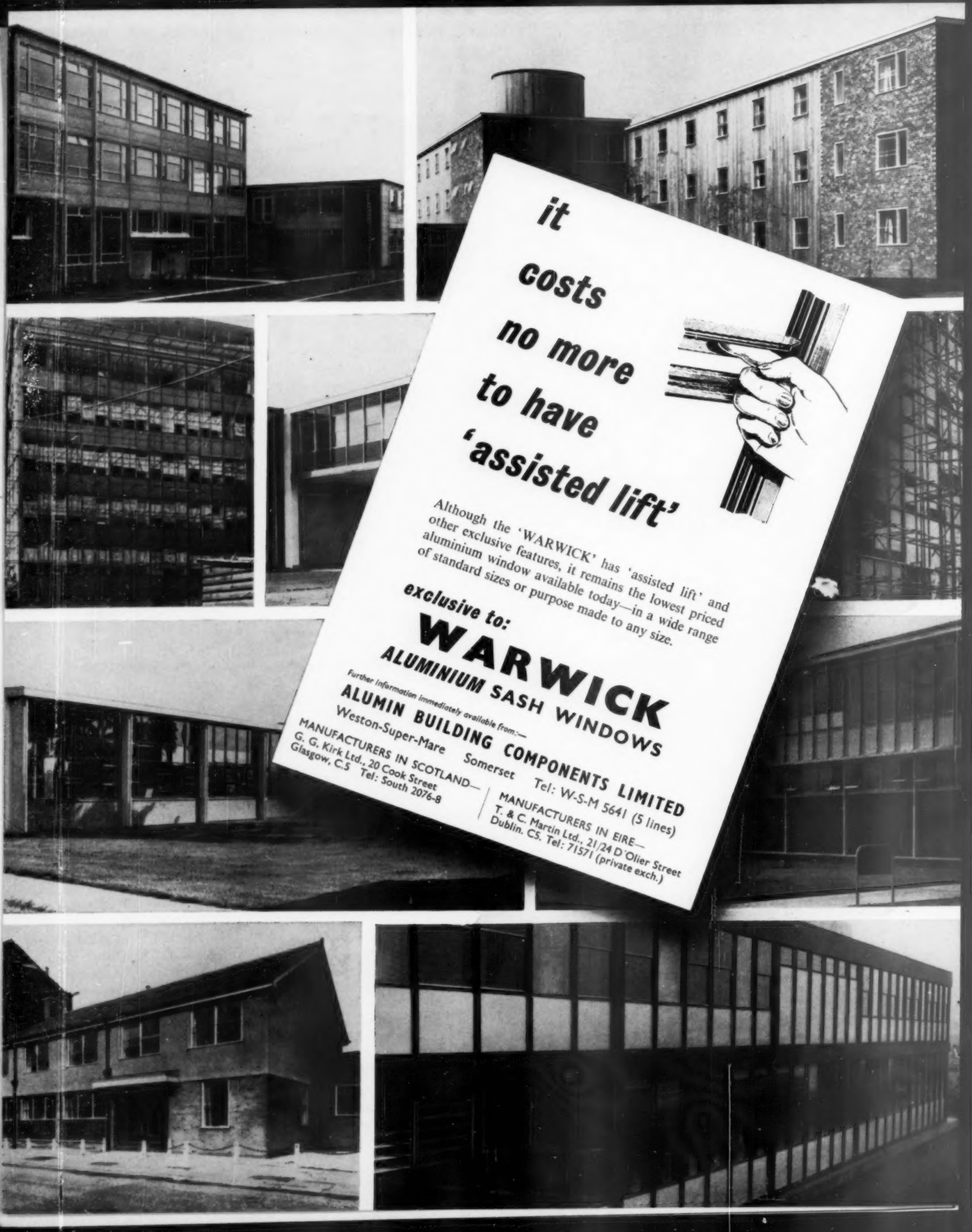
(with which is associated the Scottish Joinery and Door Manufacturers' Association)

SACKVILLE HOUSE · 40 PICCADILLY · LONDON, W.1

Telephone: REGENT 4448/9

CEH/EJS/1

You'll be glad you chose WOOD windows!



it costs no more to have 'assisted lift'

Although the 'WARWICK' has 'assisted lift' and other exclusive features, it remains the lowest priced aluminium window available today—in a wide range of standard sizes or purpose made to any size.

exclusive to:

WARWICK
ALUMINIUM SASH WINDOWS

Further information immediately available from:—

ALUMIN BUILDING COMPONENTS LIMITED

Weston-Super-Mare Somerset Tel: W-S-M 5641 (5 lines)

MANUFACTURERS IN SCOTLAND—
G. G. Kirk Ltd., 20 Cook Street
Glasgow, C.5 Tel: South 2076-8

MANUFACTURERS IN EIRE—
T. & C. Martin Ltd., 21/24 D'Olier Street
Dublin. C5. Tel: 71571 (private exch.)

Would be glad you chose WOOD windows!

Messrs Guest Keen & Nettlefolds Ltd.
66 Cannon Street, London, E.C.4
Architects: F. Boreham, Son & Wallace

H & C

ELECTRIC PASSENGER & GOODS

LIFTS

H&C LIFTS

HAMMOND & CHAMPNESS LTD.
Gnome House, Blackhorse Lane
Walthamstow, London, E.17
Telephone: LARkswood 1071

NEWAY

THE FLEXIBLE DOOR

has more than proved its value, manufactured after extensive tests this super quality door is not the cheapest, but a product worthy of specification, and is already in use in factories and industry throughout the world. If you have a door problem, Neway Flexible Rubber Doors could well be the answer. May we invite you to send for full Specification Sheets.

Rubber panels made by
DUNLOP
Rubber Company Limited

NEWAY **FLEXIBLE RUBBER DOORS**

See Neway Flexible Doors at the Building Centre, 26 Store Street, London, W.C.1. or write for free leaflet to the Manufacturers.

WILLIAM NEWMAN & SONS LTD. (Dept. AR5), HOSPITAL STREET, BIRMINGHAM 19

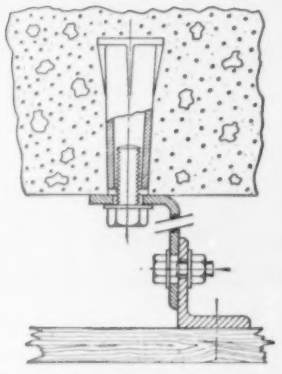
BOLT-FIXINGS BEFORE YOU POUR—NO HOLES TO BORE!

When bolt-fixings are required in concrete, and their location is known before the pour, Rawlplug Cement-in-Sockets will save you a great deal of time and trouble. The Cement-in-Sockets are attached to the inner face of the shuttering prior to pouring. When the concrete has hardened, the shuttering is struck leaving the Cement-in-Sockets in predetermined positions.

KEYED FOR STRENGTH

Rawlplug Cement-in-Sockets are made of malleable iron and shaped with four side fins and flanged base to ensure a strong permanent fixing. The key thus provided is so efficient that the strength of the fixing is determined by the strength of the concrete itself! Rawlplug Cement-in-Sockets are available for Whitworth bolts or set screws diameters from ¼" to 1".

Write now for full details of Rawlplug Cement-in-Sockets. Advice as to their application to your special needs gladly given without obligation on your part.



SOME IMPORTANT USES FOR RAWLPLUG CEMENT-IN-SOCKETS

—when moulding post or pre-tensioned concrete members.

—when pouring floors to which false ceilings are to be fixed.

—for providing ready-made bolt-fixings for partitions, pipe runs, ventilating ducts, heating units, handrails, cable racks, etc., when constructing lift shafts, stairways, bridges, tunnels, sea walls, etc.

RAWLPLUG

B695

CEMENT-IN-SOCKETS

one of the 23 different types of Rawlplug Fixing Devices for speed and strength

THE RAWLPLUG CO LTD · CROMWELL ROAD · LONDON SW7

The SWEDISH KITCHEN comes to BRITAIN

The British housewife acclaims the new trend in kitchen planning. Here is compactness to save both her steps and her time . . . compactness that conserves space and makes a doll's-house kitchen look expansive. Equipment designed to delight the modern eye, the Elektrohelios units combine for better, faster cooking—efficient refrigeration—easier management.

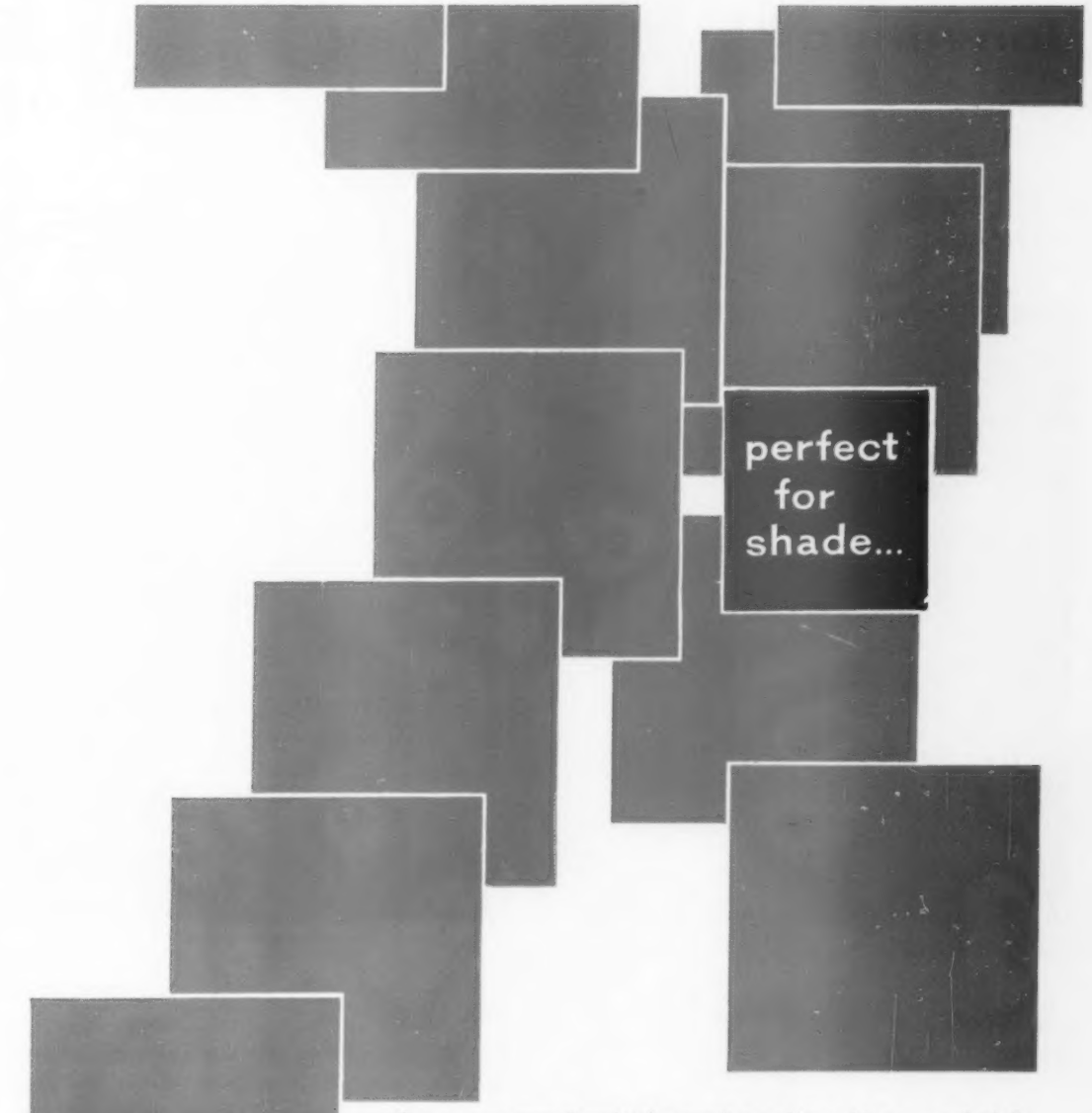
To the progressive architect or builder the Swedish Kitchen presents a superb opportunity in a highly competitive age. Its 'sales appeal' is irresistible. For the Swedish Kitchen is an idea designed . . . very clearly . . . for the convenience of users. It reduces, at a crucial time, the expenses of the new home owner inasmuch as it is included in the cost of the house—cutting out the separate purchase of a cooker, refrigerator, and so on. If you design homes, there is a place in your schemes for the Swedish Kitchen by Elektrohelios.

Available throughout Great Britain; send for full details

ELEKTRO HELIOS OF SWEDEN

HELIMATIC LTD. 22-24 BUCKINGHAM PALACE ROAD, LONDON, S.W.1

Telephone: VICtoria 3056



Have you a green thought that needs matching with a green shade? Is your outlook rosy — or your mood indigo? Whatever your colour problem — you may safely leave it to us!
From their ultra-modern tunnel kilns, Boote's Tiles emerge perfect for shape, for size, for *shade*. SILTEX brilliant glaze tiles, in rich colours; Eggshell enamel tiles in soft pastel shades; white and cream earthenware tiles . . .
let us know which interest you, and we will send you full details and samples by return.

REGD. TRADE MARK

SILTEX

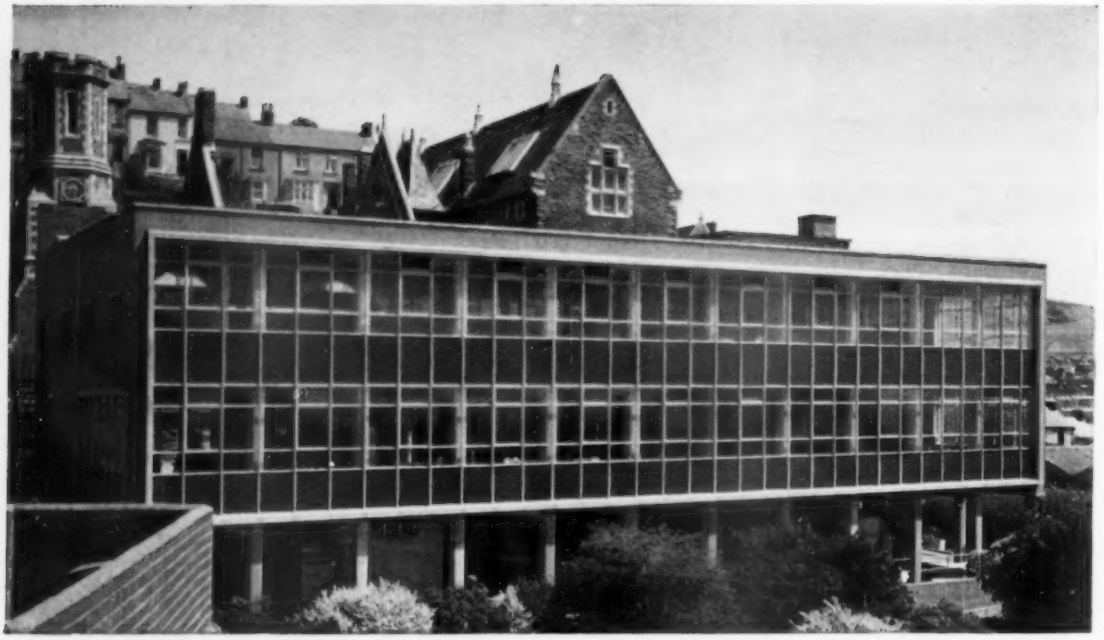
CERAMIC WALL TILES

T. & R. BOOTE LTD.

(Established 1842) Burslem, Stoke-on-Trent

Fix tiles with Boote's "TYLOFAST" Tile Fixing Mastic!

Jonwindows | *Curtain Walling*

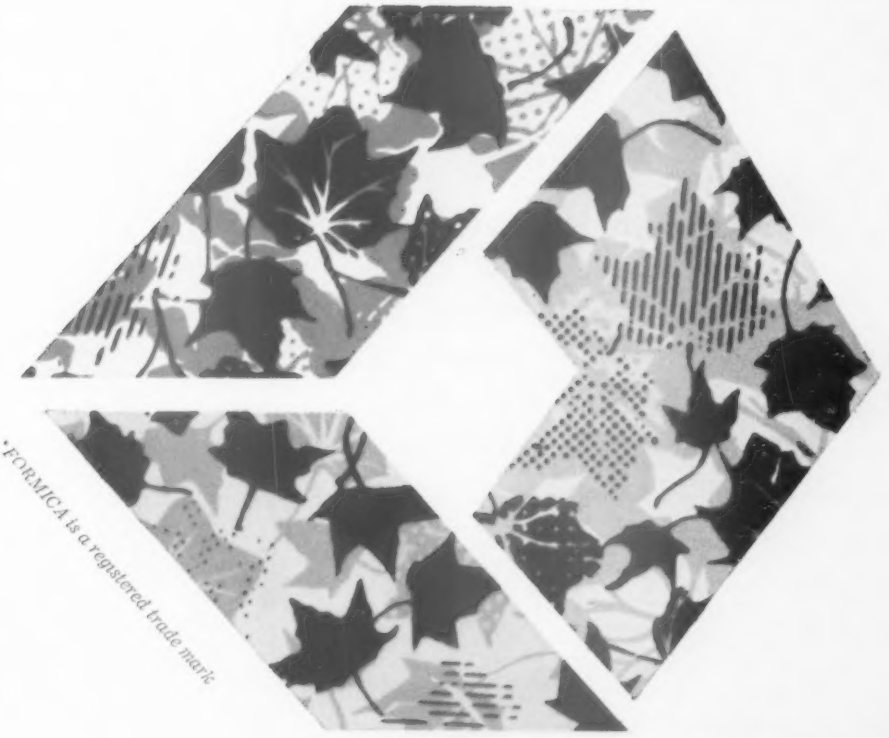


Swansea Technical College. New Workshop Block for the Swansea Education Authority

This typical example of steel reinforced aluminium curtain walling provides a clean, bold conception of line and colour. Facing out over Swansea Bay and overlooking the developing new town centre, the elevation shown above meets the full force of south-westerly coastal gales and is constantly exposed to a salt-laden marine-urban atmosphere. Such conditions call for qualities of strength and durability which are tested to the full all the time. Designed on a 3′ 4″ lateral modular basis 22 ft. high, covering first and second floors, construction is a combination of galvanized steel rib supports with aluminium cladding extrusions. Floor band panels are of coloured ply-glass with liner board backing.

JOHN WILLIAMS OF CARDIFF LTD

EAST MOORS ROAD, CARDIFF. Tel. Cardiff 33622 (12 lines) Telex. 49303



*FORMICA is a registered trade mark

FORMICA*

THE FINEST OF ALL THE DECORATIVE LAMINATES

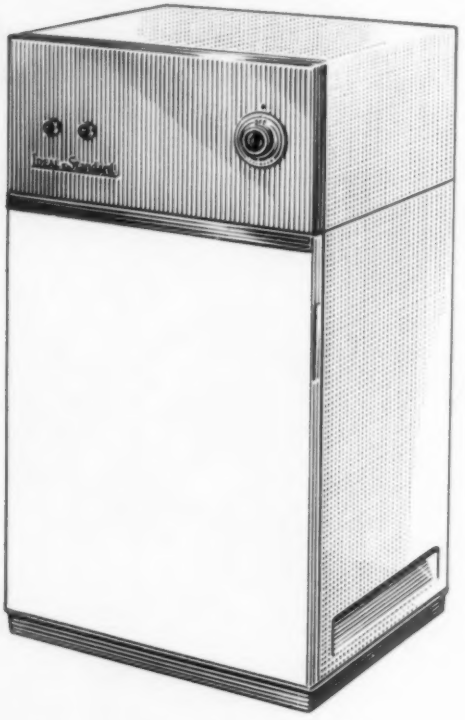
LEAF

Another in the series of Formica bold patterns for the Architect and Designer—Leaf—available on special order, in a choice of seven colours: Cream, Lavender, Dark Blue, Green and White, Grey, Light Green, Citron.

Formica Ltd., De La Rue House, 84-86 Regent Street, London, W.1.

**This reproduction may differ from the actual Formica colour pattern*

with the exclusive 'Flamaster' automatic ignition control



for the average home The Ideal Kingston Gas Boiler gives fully automatic heating and/or hot water supply in the small to medium sized home. There is a choice of sizes, from 25,000 B.T.U./hr, at very competitive prices.

fully automatic The 'Flamaster' automatic ignition control gives on/off control from a remote switch (no pilot to light) and complete safety (if gas or electricity supply fails the boiler shuts off and, when supplies are restored, it relights automatically).

small bore heating The Kingston can be supplied with an Ideal-Hotflow accelerator fitted inside the jacket.

domestic hot water supply The Kingston can be used with a direct cylinder to give domestic hot water supply, as the waterways are accessible for cleaning.

delivered fully assembled The Kingston is dispatched fully assembled, bolted to a wooden base and wrapped in a protective envelope of polythene.

IDEAL Kingston Gas Boilers

497

IDEAL BOILERS & RADIATORS LTD · IDEAL WORKS · HULL

VISIT OUR STAND NO. 29 AT THE BUILDING TRADES EXHIBITION, MANCHESTER, OCTOBER 11th — 22nd.

AUSTIN REED
(CARDIFF)
Architect:
Westwood Sons
& Partners

Tomorrow's needs must be planned for, today

Architects and Executives today, concerned with interior planning, need to be in touch with modern interior sales presentation. New developments in materials and merchandise demand it.

The George Parnall organisation base all work carried out for clients on a true appreciation of this need, interpreted according to the highest standards of contemporary design.

Our consultant designers welcome an opportunity to collaborate with architects alive to the urgent needs of tomorrow.

GEORGE PARNALL & CO. LTD.
Craftsmen and Designers
4 BEDFORD SQUARE, LONDON, W.C.1
Telephone: MUSeum 7101

REPLANNING AND MODERNISATION

Left
WARING AND
GILLOW
China Dept.

Right
J. F. TAYLOR & Co. Ltd.
BRISTOL
Dress Materials Dept.

HATTERSLEY

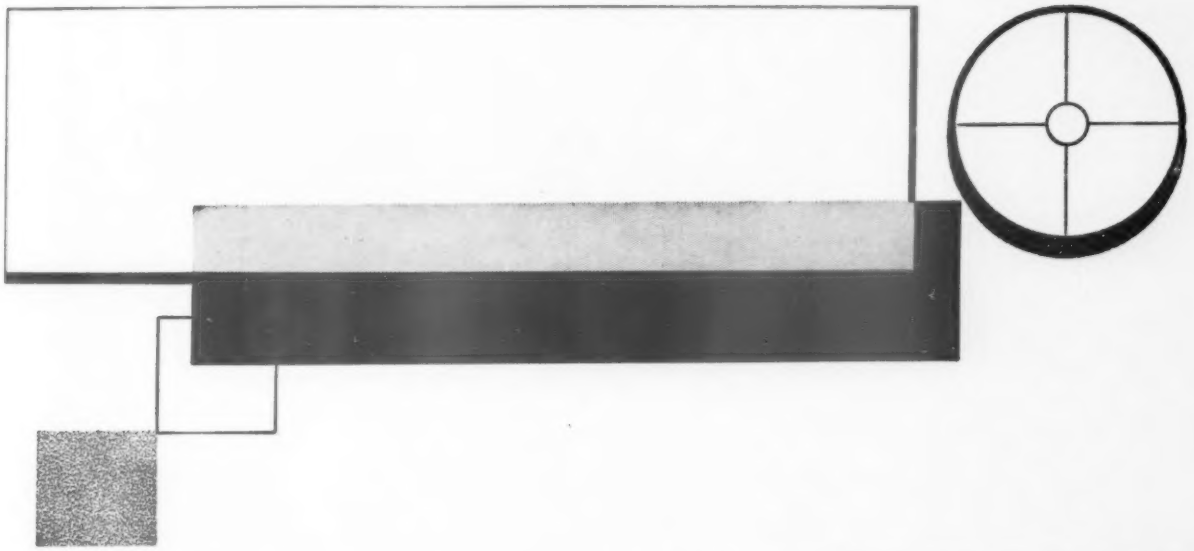
"Y" Type Panel Valves are specified for the new Shell Centre, London

Thousands of Hattersley Fig. P.330 "Y" type panel valves are being installed in the new Shell Centre. The valves are for fine control and isolation of suspended ceiling and embedded floor panels for heating and cooling purposes.
The compact design of the valves and the ease of flow regulation afforded by the special patented clack makes them ideally suited to this application.
Designers and Contractors for the installation are Messrs. G. N. Haden & Sons Ltd.

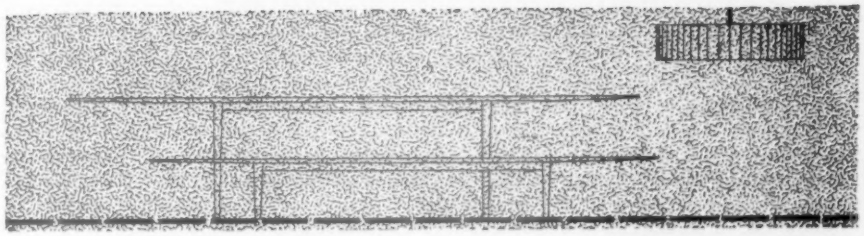
HATTERSLEY
ESTABLISHED 1897

the name for good valves

HATTERSLEY (ORMSKIRK) LIMITED ORMSKIRK · LANCASHIRE
and at HALIFAX and LONDON



joins in modern architectural design



You're probably making creative use of the tremendously wide and interesting range of decorative and functional surfaces now available. We're lucky. We get interesting previews of most of them. And usually well before the manufacturers go into serious production. These manufacturers know their stuff; they want to interest you in their latest material, *together with a certain, speedy and economic means of fixing it.* So first they come to us for laboratory tests. Perhaps we're doubly lucky; for they inevitably recommend Evo-Stik 'Impact' adhesives. Then they know that their new material will go up—and, (most important) *it will stay up.*

'impact' EVO-STIK adhesive

EVO-STIK is a registered trade mark

EVODE LIMITED · COMMON ROAD · STAFFORD · TEL: STAFFORD 2241 (6 lines) LONDON OFFICE: 82 VICTORIA STREET · SW1 · TEL: ABBEY 4822/3/4

NEW!

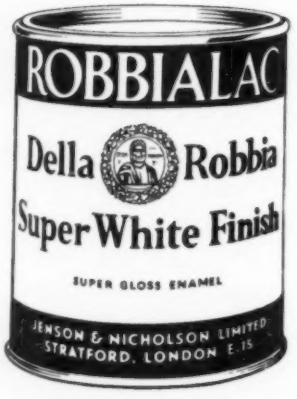
Della Robbia
SUPER WHITE FINISH

The whitest white--by ROBBIALAC

Not really satisfied with any white paint? Here's the answer to your problems! DELLA ROBBIA—the newest and whitest, white enamel. You can specify DELLA ROBBIA with complete confidence for all white-painting purposes. For this new miracle paint, which after years of experiment we have brought to perfection, is not only a perfect white, but it stays white long after other whites have turned dull or yellow.

DELLA ROBBIA SUPER WHITE FINISH is a little dearer than other white gloss paints, but what rich dividends it pays in satisfaction and permanence.

Why not specify DELLA ROBBIA for all your white-painting purposes? Your clients will be delighted with your results.



And new, deeper tones with

999 LOVELY Colorizer TRADE MARK COLOURS

Remember that Colorizer now offers 999 shades, not only in pastel shades but in deeper rich colours. For matching curtains, covers, or carpets, Colorizer is a gift to colour-conscious clients. Now 999 colours in Super Gloss Enamel, Eggshell Enamel, Satin Lustre Finish, Suede Finish, and Emulsion Paint, plus Undercoat.

ROBBIALAC KEEPS THAT "JUST PAINTED" LOOK!

JENSON & NICHOLSON LTD., Jenson House, Carpenter's Road, Stratford, London, E.15

HEATING BY CRANE

Old Trafford, the Manchester headquarters of the Lancashire County Cricket Club, is one of the most famous cricket grounds in the world. Almost every touring team that visits England plays one Test here.

The Club's premises now have a new heating system—by Crane, of course. One No. 37L Whitehall Sectional Boiler, oil burning, has been installed; and throughout the Pavilion building 46-5¾" wide Crane Hospital Pattern Radiators provide the friendly warmth that this form of heating can give. Crane radiators were chosen for their good appearance; because they are smooth castings with adequate space between sections for easy cleaning; because they are made of cast iron for long life; and, most important of all, because they do such a lot for the comfort of the Club members! Shown above is the newly decorated Committee Members' Dining Room.

Heating Engineers: Saunders & Taylor Ltd., Manchester 3.
Architects: Bradshaw, Gass & Hope, Bolton.

CRANE HEATING EQUIPMENT

83C

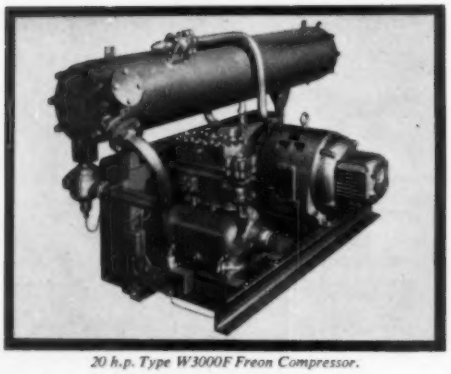
CRANE LTD., 15-16 RED LION COURT, FLEET STREET, LONDON E.C.4 WORKS: IPSWICH
Branches: Birmingham, Brentford, Bristol, Glasgow, Leeds, London, Manchester

"... and let's have Sterne's *advice on the refrigeration ...*"

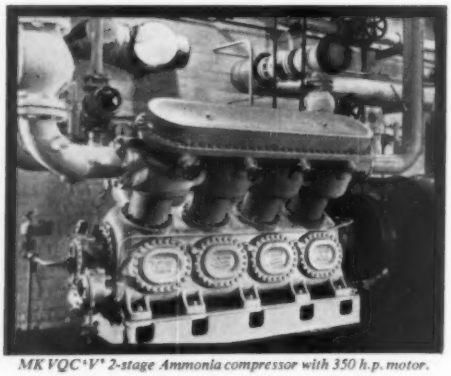
If you have a refrigeration problem to face, no matter how complex it may be, you will require expert advice and assistance in every stage from concept to completion. Call in Sterne.

For nearly 100 years Sterne's knowledge and experience of every aspect of industrial and commercial refrigeration has been applied to problems both large and small—with highly satisfactory results.

A Technical Advisory Service, backed by a nation-wide sales and after-sales service, is at your call. Get in touch with them to-day.



20 h.p. Type W3000F Freon Compressor.



MK VQC 'V' 2-stage Ammonia compressor with 350 h.p. motor.

STERNE REFRIGERATION

for all aspects of refrigeration

L. STERNE & COMPANY LIMITED

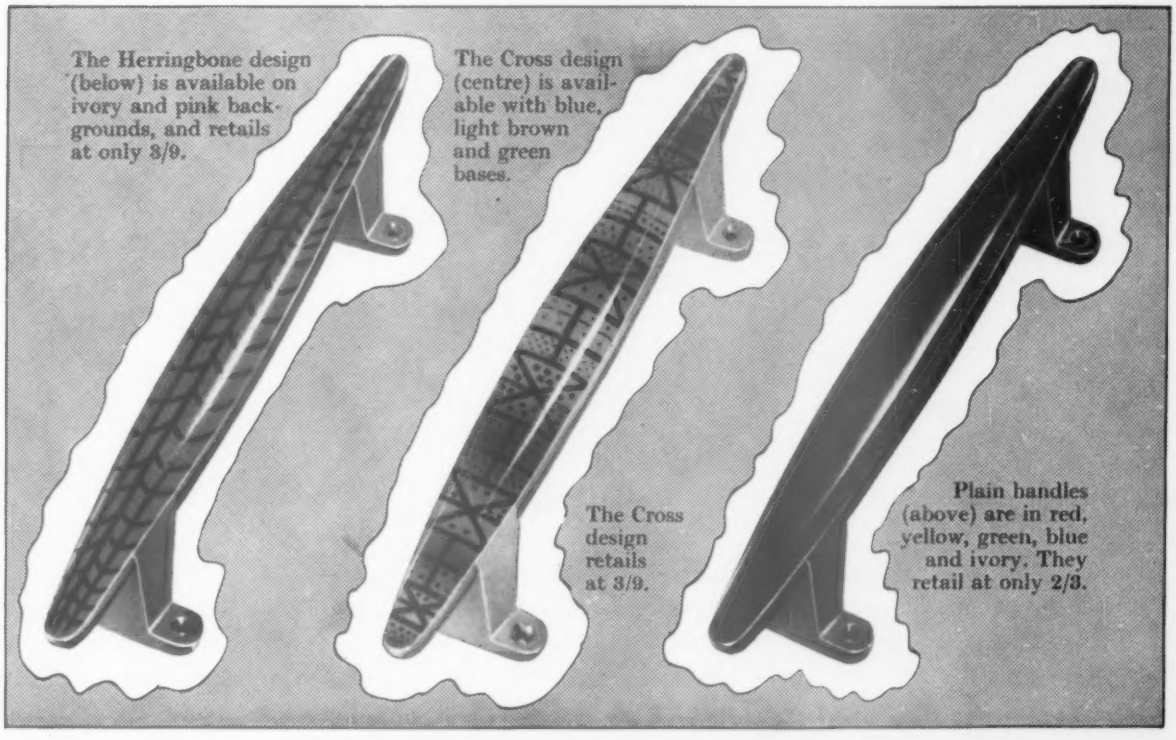
The Crown Iron Works · GLASGOW

Telephone: DOUglas 6461 (10 lines) Telex No. 77300

Full technical and service facilities available at the following branches—

LONDON · LIVERPOOL · ABERDEEN · BRISTOL · BELFAST · CARDIFF · DERBY · HULL · NEWCASTLE · LEEDS

Superb NEW range of LACRINOID pulls


The Herringbone design (below) is available on ivory and pink backgrounds, and retails at only 3/9.
The Cross design (centre) is available with blue, light brown and green bases.
The Cross design retails at 3/9.
Plain handles (above) are in red, yellow, green, blue and ivory. They retail at only 2/3.

Styled for the 'sixties

These beautiful plastics grips will brighten any building. Ideal for kitchen, breakfast room and bathroom. The finish and appearance are just like porcelain, and they're *scratchproof* too!

LACRINOID

TRADE MARK

Lacrinoid Products Ltd · Gidea Park · Essex · Telephone: Hornchurch 52525

MCN780

REYROLLE
PLUGS AND SOCKETS

The illustration shows one of a number of multi-system distribution-boards of various types, designed and manufactured by Reyrolle to customers' specification. System selection is achieved with "Easigo" metalclad protected-type plugs and sockets to B.S. 196.

For details of our extensive range of plugs and sockets please send for Pamphlet 1252.

Reyrolle

A. Reyrolle & Company Limited - Hebburn - County Durham - England

'School's a real pleasure . . .'

with

'WINDOWALL' CURTAIN WALLING

The post-war years have brought a revolution in building and nowhere is it more apparent than in the framed building of schools.

The Quicktho Windowall system, by its flexibility in positioning of windows and ventilators and its beauty and simplicity of design, offers a direct incentive to originality in architectural design. Made to the highest standard of efficiency, they have been widely acclaimed for their faultless action. The system also provides generous erection tolerances. All sections are of high corrosion-resisting aluminium alloy.

Write or telephone our Technical Dept. for further details and new brochure Q0059.

If you have a specific project in mind we shall be pleased to arrange for a member of our Technical Staff to call.

QUICKTHO

ENGINEERING LIMITED

5, GRAFTON STREET, LONDON, W.1

Telephone: HYDe Park 1806 (5 lines)

when you think of abundant even light... durability... safety and economy... one thing's clear ...and that's GLASS!

Plants aren't the only things that flourish under glass. People do. Ideas do. And so does production. It's as clear as daylight that glass roofs and glass walls are good for workers and good for business. But they bring other very practical benefits, too. Glass is the one transparent building material that's non-combustible — approved by *every* governmental and local authority. And once fixed, occasional cleaning is all the maintenance it ever needs. Weather won't affect it. Fumes and heat can't change the diamond-hard composition that outlasts all softer substitutes. Just think of its advantages — abundant, even light; ease of temperature and ventilation control; safety; economical maintenance-free life outlasting even that of the building. Think of them all... one thing's clear — clear as daylight.

And that's GLASS!

THE PATENT GLAZING CONFERENCE is an old-established trade association representing the interests of specialist sub-contractors engaged in the design, manufacture and installation of Patent Glazing for the daylighting of industrial and other buildings. Its name and symbol is a guarantee that glazing will be carried out by highly skilled craftsmen using the finest of materials.

FOR ROOFS AND WALLS

Specify **GLASS IN PATENT GLAZING**

THE PATENT GLAZING CONFERENCE

BURWOOD HOUSE · CAXTON STREET · LONDON · SW1

The British Challenge Glazing Co · Furnias & Co · The Glaslok Patent Roof Glazing Co Ltd · Haywards Ltd
Helliwell & Co Ltd · W. H. Heywood & Co Ltd · Hills (West Bromwich) Ltd · Henry Hope & Sons Ltd
W. G. Kaleyards Ltd · Luxfer Ltd · Mellowes & Co Ltd · Monk Patent Glazing Co Ltd · Paragon Glazing Co Ltd
The Pennycook Patent Glazing & Engineering Co Ltd · The Puttyless Glazing Co · Standard Maclean Ltd
The Standard Patent Glazing Co Ltd · The Universal Glazing Co Ltd
Williams & Williams Ltd · Wottons (Croydon) Ltd

Talbot Hicks

STEELWORK AT A SUPPLY & RESERVE DEPOT, KLONDYKE WHARF, DEPTFORD

This building is designed for heavy floor loading on long-span girders, as illustrated.

Architects: Messrs. Grace & Farmer, F.R.I.B.A.
Consulting Engineer: A. E. Highfield Esq., B.Sc. (Eng.) Hons., A.M.I.C.E.
Contractors: John Mowlem & Co. Ltd.

STEELWORK BY

REDPATH BROWN

Branches: Edinburgh, Glasgow, London and Manchester

STEEL
STRENGTH & SECURITY

What all the newest floors are floating on

There is now a new and better form of Fibreglass for the sound-deadening of concrete and timber floating floors. It is called Fibreglass Crown Sound-Deadening Quilt.

Crown Quilt has many advantages over the materials it replaces. Its resilience is much higher, its thickness and density are much lower; it is easier to transport and handle; easier to store and easier to lay. Yet it costs no more.

Crown Quilt has been proved in laboratory tests by NPL and site tests by B.R.S.

FIBREGLASS
TRADE MARK

This sample box of **Crown Sound-Deadening Quilt**, together with full technical data, is yours for the asking from Fibreglass.

FIBREGLASS LIMITED, ST. HELENS, LANCS. TEL. ST. HELENS 4224

Attuned

to

Responsibility

Kaye Locks

Having chosen a style, every fixture must conform. Kaye Locks and door furniture provide the right combination of modern elegance and traditional reliability for the headquarters of the R.I.B.A.—as well as for many other famous buildings.

FOR EVERY APPLICATION

- Hotel Locks
- Mortice Locks
- Sliding Door Locks
- Emergency Door Fittings
- Padlocks
- Latches
- Rim Locks
- Cupboard Locks
- Stabilisers
- Drawer and Desk Locks

TECHNICAL PERFECTION

- 4 Lever Locks
- 750 Differs off Levers
- Differs from Levers and Wards are almost unlimited
- Followers are of hard resistant Brass
- Forends are of hard resistant Brass
- Phosphor Bronze Springs to Levers
- The 'K' design, four lever Lock is for greater security
- The Locks can be made in suites with Sub-master and Master Keys

Photograph by courtesy of the R.I.B.A. Architects: Messrs. Playne & Lacey.

Illustrated literature is available on request

SECURITY K SERVICE

Joseph Kaye & Sons Ltd.,

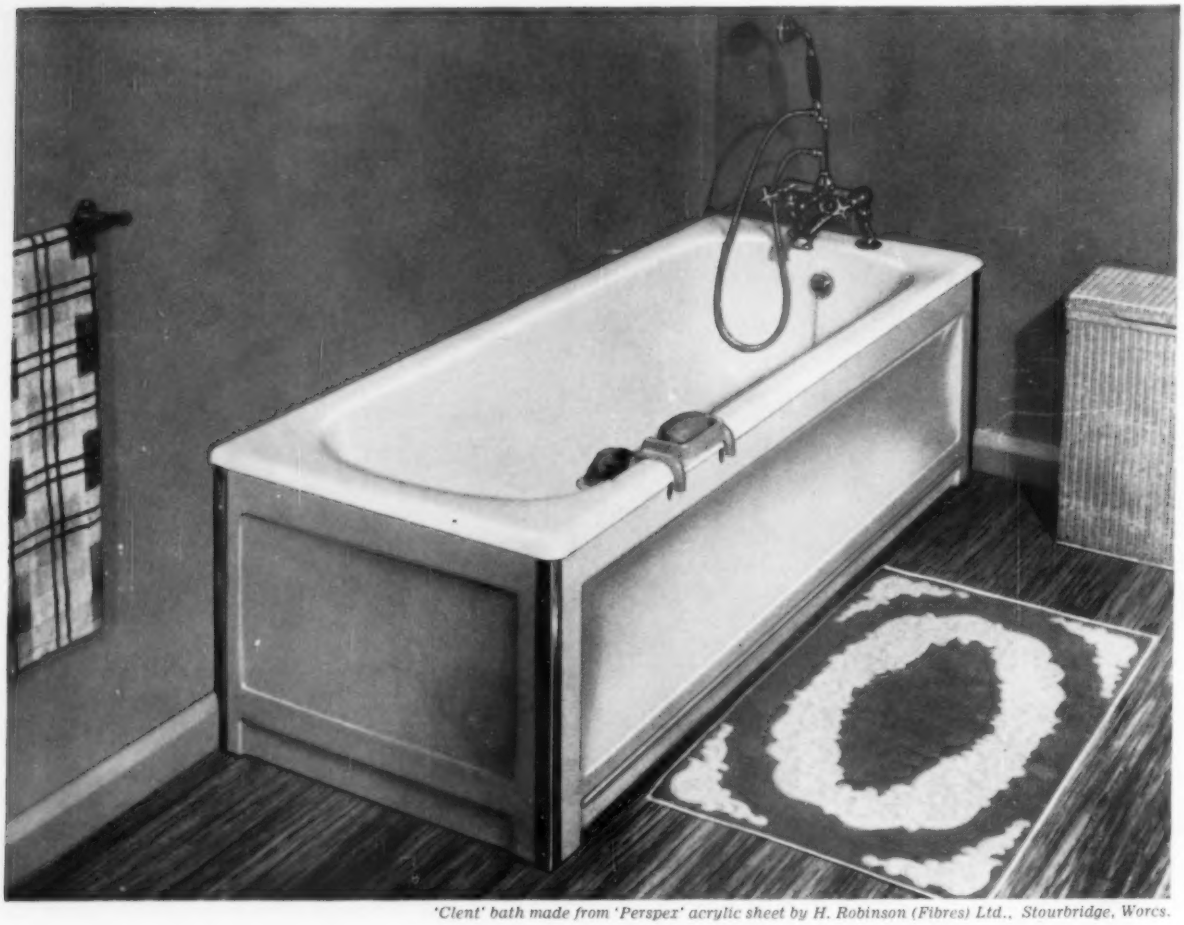
Established 1864

Lock Works, Leeds 10. Telephone: 20887
London Office: 1-5 New Bond Street, W.1. Tel: Hyde Park 2956

Sound Conditioning in the **ADMINISTRATION BLOCK OF MAX FACTOR LTD., POOLE** by Hermeseal.
Architects: Farmer & Dark, Poole, Dorset.

HERMESEAL

HERMESEAL ACOUSTICS LIMITED
HEAD OFFICE: 4 PARK LANE, LONDON, W.1. TELEPHONE, GROSVENOR 4324



'Clent' bath made from 'Perspex' acrylic sheet by H. Robinson (Fibres) Ltd., Stourbridge, Worcs.

Baths in 'Perspex' have it all...colour, strength, light weight and reasonable price

THIS is one of several baths now being made from 'Perspex' at a very reasonable price. Its high gloss finish is no surface coating – the colour and consistency of the sheet are the same throughout.

A bath made from 'Perspex' will not rust or corrode, is unaffected by boiling water, disinfectants and household cleaning fluids and is easy to keep clean. What is more, 'Perspex' can be moulded into luxury shapes without the usual high extra cost these shapes involve. And the light weight of a bath made from 'Perspex' makes it easier to install than a conventional bath.

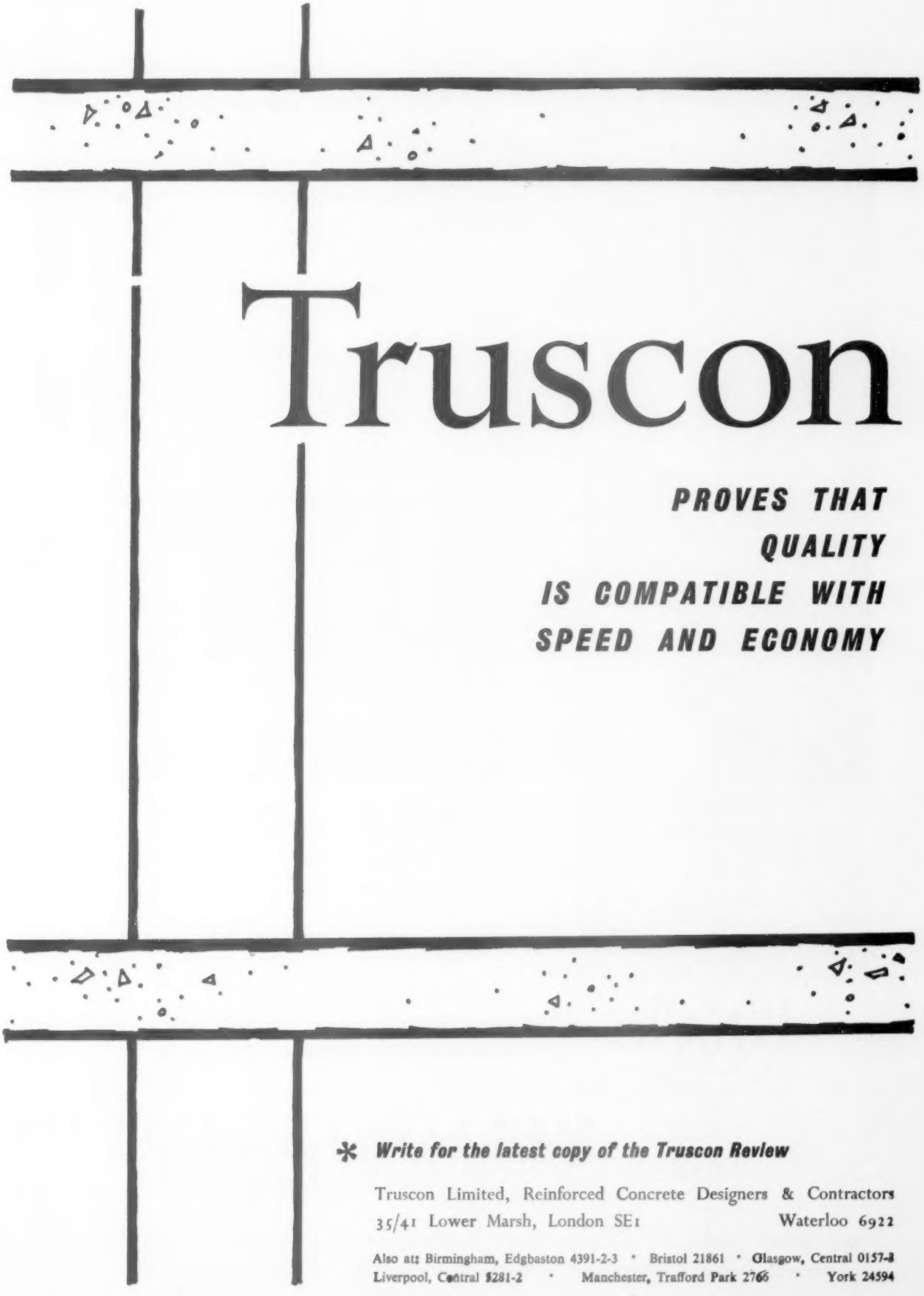
Baths are made from 'Perspex' by: P. & S. Plastics Ltd. ('Cleopatra'); Henry Robinson (Fibres) Ltd. ('Clent'); Thermo Plastics Ltd.; Troman Bros. Ltd. ('Crelene').

'PERSPEX'

'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.

P.761

IMPERIAL CHEMICAL INDUSTRIES LIMITED · LONDON · S.W.1



Truscon

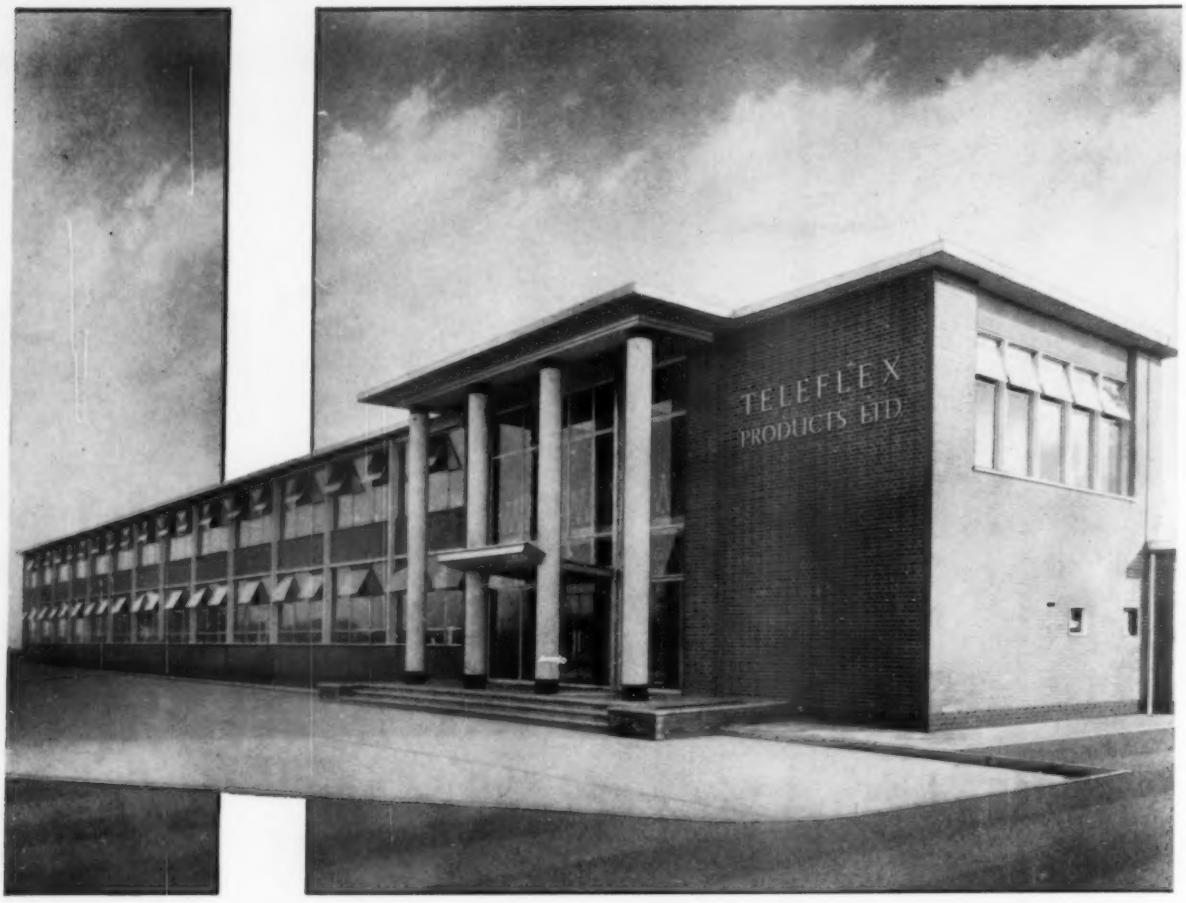
PROVES THAT QUALITY IS COMPATIBLE WITH SPEED AND ECONOMY

✻ ***Write for the latest copy of the Truscon Review***

Truscon Limited, Reinforced Concrete Designers & Contractors
35/41 Lower Marsh, London SE1 Waterloo 6922

Also at: Birmingham, Edgbaston 4391-2-3 · Bristol 21861 · Glasgow, Central 0157-8
Liverpool, Central 5281-2 · Manchester, Trafford Park 2766 · York 24594

aluminium windows . . .



. . . and doors

for the

Teleflex Products Limited, Basildon

Architects :

Basildon Development Corporation

Consultant Architect :

Francis Smith, Esq., F.R.I.B.A., F.R.I.C.S.

by

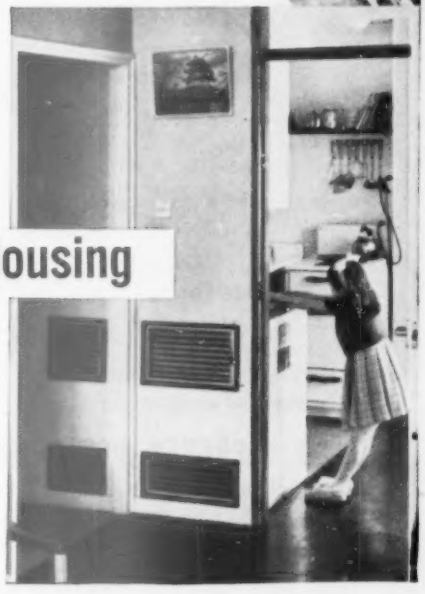
MELLOWES & CO. LTD.

SHEFFIELD LONDON OLDHAM

Some of the 555 flats and maisonettes, incorporating Weatherfoil heating at the London County Council housing project, Brandon Estate, Southwark. Architect to the Council, Hubert Bennett, F.R.I.B.A.

WEATHERFOIL for the Architect

Many of the most eminent architects in the country entrust their heating problems to Weatherfoil. They know they can rely on the Weatherfoil design team for the closest co-operation at every stage of the project. Result — a heating system perfectly suited to its purpose at the lowest possible cost.



Metered Heat for Multiple Housing

Tenant pays a standing charge included in the rent, which covers capital costs and maintenance, and a measure of background heat. Charge for full heating is registered by a meter, and may be as low as 1d per hour. Heater thermostat is set by tenant and can be switched off when not required.

- *Low cost installation*
- *Economical running*
- *Temperature and on/off control in each dwelling*
- *Tenant pays by meter*

WEATHERFOIL Metered Heat

Write for details to:—

WEATHERFOIL LTD. *Head Office:* 185 BATH ROAD, SLOUGH · BUCKINGHAMSHIRE · TELEPHONE: SLOUGH 25561

BROADGATE HOUSE · COVENTRY · WARWICKSHIRE · TELEPHONE: COVENTRY 40116

for ALL OVER heating

Specify

Kalorite

circulators

ensure adequate heating throughout the whole building by maintaining

* every radiator hot
* heat where you want it, when you want it

With the 'Kalorite' circulator you get

* rapid heating
* trouble-free performance
* noiseless operation

ALSO IMPROVED PERFORMANCE

on existing gravity systems in residential, commercial, civic and industrial buildings

HARLAND OFFER A COMPLETE RANGE OF KALORITE CIRCULATORS FOR HOT WATER HEATING SYSTEMS

Kalorite

circulators

THE HARLAND ENGINEERING CO LTD

Kalorite Sales Dept: HARLAND HOUSE 20 PARK STREET LONDON W1

BRANCH SALES OFFICES: BRISTOL · GLASGOW · LEEDS · NEWCASTLE · NOTTINGHAM TIMPERLEY · WOLVERHAMPTON & OVERSEAS

WORKS AT ALLOA, SCOTLAND & TIMPERLEY, CHESHIRE

K4

No. 57/10 'Sheerline' Fitting for Bath

Bathroom Fixtures

BY

Shanks

SHANKS & CO., LTD., TUBAL WORKS, BARRHEAD, SCOTLAND

RILEY service in your area

Make a note of your local Riley service centre now and get to know our representative or agent. He will give full advice on the type of equipment required and will install and keep your Riley equipment at optimum operational efficiency. Comprehensive contract maintenance can be arranged where required.

LONDON	RILEY (IC) PRODUCTS LTD, 19 Woburn Place, W.C.1 *Terminus 2622*
BELFAST	HENRY R. AYTON LTD, 7 Brunswick Street *Belfast 29834*
BIRMINGHAM	POWER UTILITIES LTD, Lombard House, Gt. Charles Street *Central 3446*
BRISTOL	RILEY (IC) PRODUCTS LTD, 75 Queens Road *Bristol 27934*
DERBY	RILEY (IC) PRODUCTS LTD, Derby *Derby 23223*
DUBLIN	HENRY R. AYTON LTD, 20 Harcourt Street *Dublin 51335*
GLASGOW	RILEY (IC) PRODUCTS LTD, 129 St. Vincent Street *Central 1164*
LEEDS	RILEY (IC) PRODUCTS LTD, National Employers' House, Quebec Street *Leeds 33274-5*
MANCHESTER	BAKER, KELLY & WALLIS, 123 Deansgate *Blackfriars 5122*
N. E. MIDLANDS	RILEY (IC) PRODUCTS LTD, 54 Thorpe End, Melton Mowbray, Leicestershire *Melton Mowbray 2495*
NEWCASTLE-UPON-TYNE	RILEY (IC) PRODUCTS LTD, Emerson Chambers, Blackett Street *Newcastle 24871*

Representatives and service engineers are established at the various centres listed to give the best possible pre-sales, installation and maintenance service covering all the Company's equipment:

UNDERFEED & CHAIN GRATE STOKERS

OIL BURNERS & OIL FIRING INSTALLATIONS

OIL FIRED AIR HEATERS · KILN STOKERS · INCINERATORS

RILEY (IC) PRODUCTS LIMITED

One of the International Combustion Group of Companies

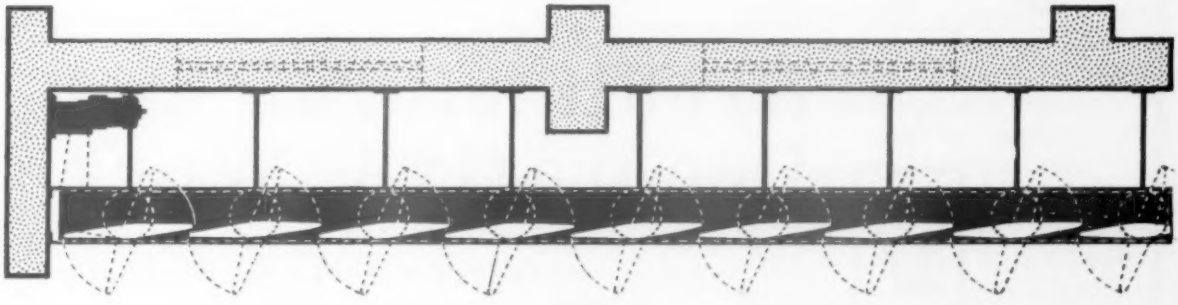
NINETEEN WOBURN PLACE LONDON WC1 · TELEPHONE: TERMINUS 2622

TGA 876

HOPE'S aluminium sunbreakers

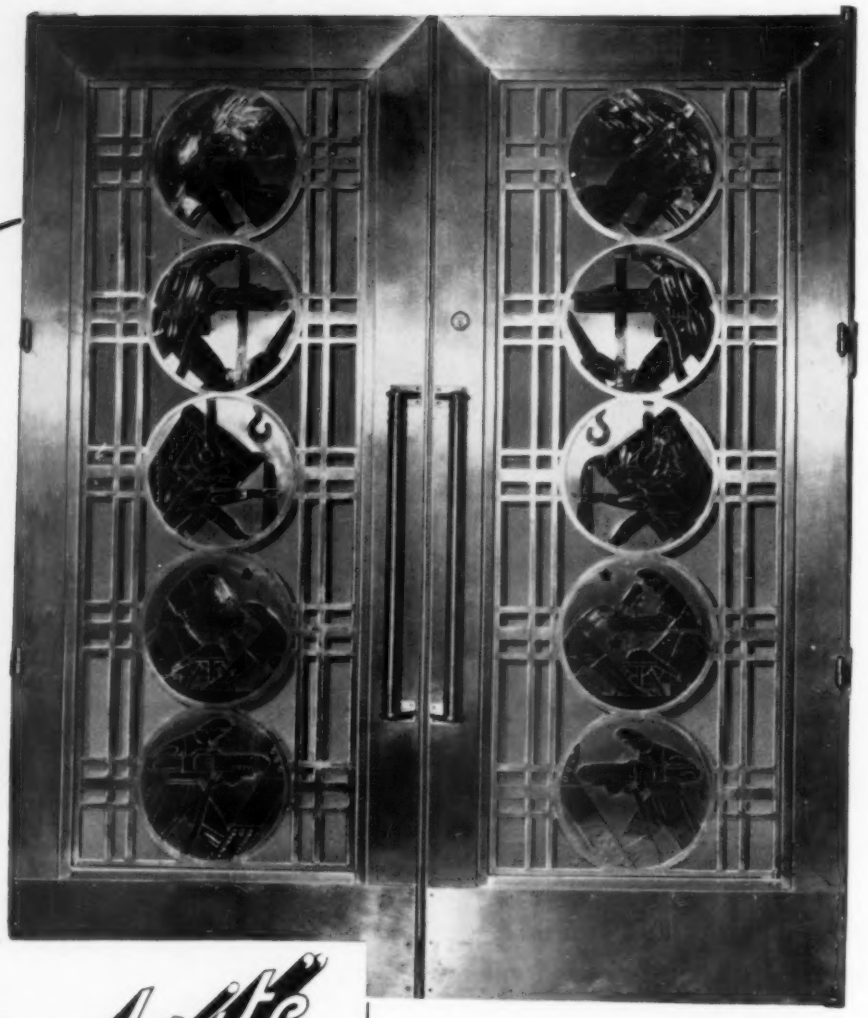
GORDON GRANT BANK, TRINIDAD *Mence & Moore, A.A./L.R.I.B.A., Chartered Architects*

Anodised aluminium sunbreakers in aerofoil profile, 30 ft. high,
rotating in unison within a galvanized pressed steel frame,
and operated by electrical gearing.
We manufacture a wide range of sunbreakers in a variety of profiles,
both single and doubled skinned, fixed and movable.



HOPE'S WINDOWS
The Name Guarantees

HENRY HOPE & SONS LTD
SMETHWICK, BIRMINGHAM
LONDON: 17 BERNERS ST., W.1



"Staybrite"

stainless steel

for Architectural and Decorative Work

FIRTH-VICKERS STAINLESS STEELS LTD., SHEFFIELD

the only company in Europe to devote its activities exclusively to the production and development of stainless and heat-resisting steels

Renaissance

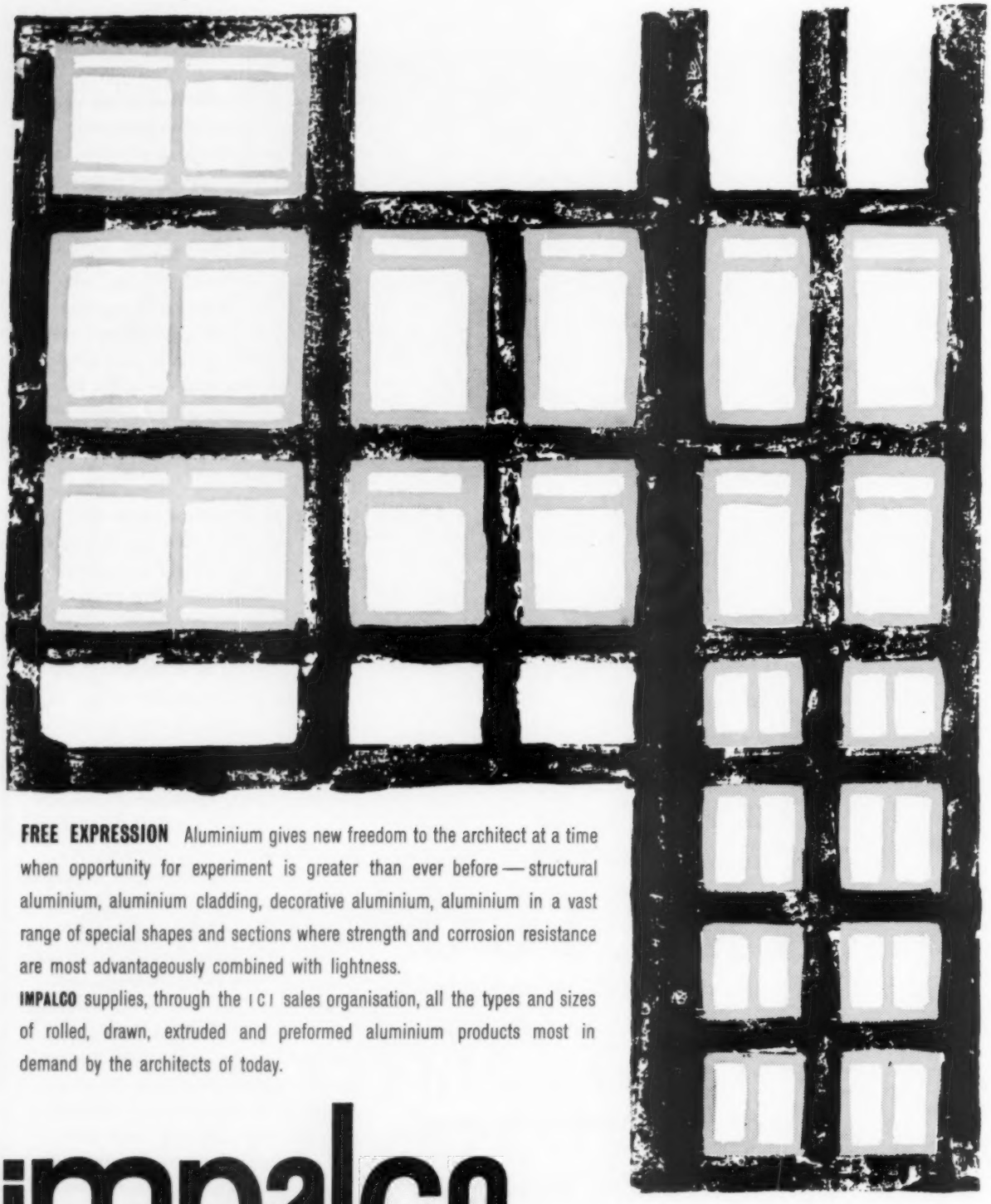
a new dimension in translucent vinyl flooring . . . with all the beauty and many times the life of natural marble. Renaissance: an inspiring design in

AMTICO

probably the most beautiful flooring the world has ever known

Imagination takes the floor — and wall —when Renaissance takes your eye. And this superlative Amtico quality is, indeed, fast taking the eye of architects and designers and decorators. Here's more than the subtle colours, the natural effects, of real marble. Here's a *depth*, a translucence, that only Amtico solid vinyl can offer. And wear. Long, hard wear. Tests show that Renaissance will outlast marble forty times. This despite such modern-day things as *stiletto heels* and abrasive chemicals. Like all Amtico solid vinyl flooring, Renaissance is resilient: therefore it *gives* under foot, and is comparatively quiet in use. One thousand eight hundred square feet of Renaissance have just been laid in the foyer and lounge of the Royal Hibernian Hotel in Dublin, to the design of John Siddeley. And at the 1960 Ideal Home Exhibition, Amtico flooring was selected for the huge Radiation stand and for the flooring in the kitchen, living room and family room in the American house. It handsomely adorned the walls of the bathroom in the Georgian House. Launched in Britain at the beginning of the year, Amtico is becoming accepted far and wide. It's being talked about. People are discussing its properties. Wear . . . resilience . . . translucency . . . colour . . . and not least, *designs*. Plain, Terrazzo, Wood Grain, Cork, Eldorado Metal, Stardust. And in addition, Amtico can repeat just about *any* element of design from wallpaper, fabric, insignia or photographs. You may already have heard Amtico discussed. Now: see the marvel itself in displays and laid floors and walls which show the complete range made by the world's largest producers of solid vinyl. Humasco Limited hold stocks and offer a technical and design service. Please come. Ring CITy 1056, or write to the address below, suggesting when you may be expected.

HUMASCO LIMITED · *VINYL COVERINGS* · 23 OLD BAILEY · LONDON · EC4



FREE EXPRESSION Aluminium gives new freedom to the architect at a time when opportunity for experiment is greater than ever before — structural aluminium, aluminium cladding, decorative aluminium, aluminium in a vast range of special shapes and sections where strength and corrosion resistance are most advantageously combined with lightness.

IMPALCO supplies, through the ICI sales organisation, all the types and sizes of rolled, drawn, extruded and preformed aluminium products most in demand by the architects of today.

impalco aluminium

Imperial Aluminium Company Limited · Birmingham

THE SILENT SHIP

S.S. Canberra, 45,000 Tons, built by Harland & Wolff, Ltd.

For the Canberra, the world's most modern liner, high standards of Acoustic Engineering were demanded—and were met.

Because the engine room is located aft, a great reduction in background noise has been achieved throughout the passenger quarters of the ship. In consequence, normal cabin-to-cabin noise is much more audible, and its elimination, therefore, became essential.

Specially designed isolated sound resistant cabin doors and bulkheads were the answer. Their construction, with other specialist acoustic work, has been entrusted to Sound Control.

To the Architect and to Industry we offer, on land or sea, an equally efficient solution to any sound problem.

SOUND CONTROL LIMITED

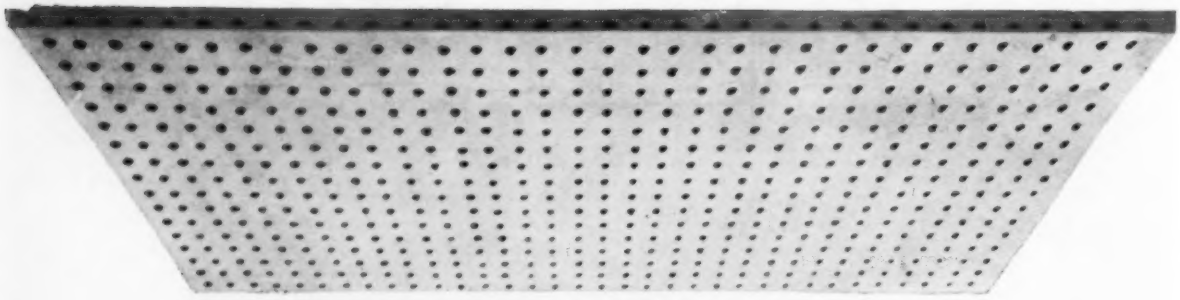
ACOUSTIC ENGINEERS

A member of the Hall-Thermotank Group.

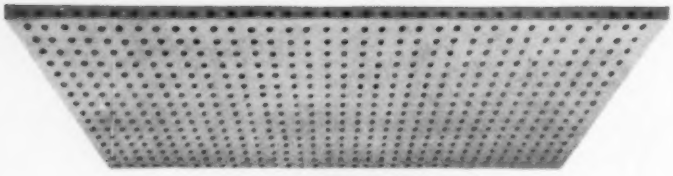
Colneside Works, West Drayton, Middlesex. **West Drayton 3685 (5 lines)**

Scottish Office: 10 Bothwell Street, Glasgow C.2. **Central 6571/2**

PAXBOARD



reduces noise to an



undisturbing

level

Newalls (Reg'd Brand) PAXBOARD presents the architect with a first-class medium for large-area acoustic insulation.

The modern tendency to use large rooms in office blocks results in an artificially increased noise level due to numbers of people working together, and makes acoustic treatment more essential than it would otherwise be. Similarly in factories, the provision of a sound-absorbent ceiling which reduces noise, and simultaneously insulates heat more effectively than any building board, is an attractive proposition, particularly in view of the reasonable cost for an all-asbestos product.

PAXBOARD has been produced especially for this class of work.

It is ½" in thickness and available in sizes up to 6' 0" × 3' 0", has a very good efficiency (50% absorption coefficient at 500 c.p.s. — 75% at 2,000 c.p.s.), is not affected by repeated decoration and, being composed entirely of asbestos, is absolutely *fire-proof* and is rot-proof and vermin-proof.

PAXBOARD weighs less than 1-lb./sq. ft. and the larger than normal acoustic board size renders erection cheaper and more convenient.

With all these practical attributes it is small wonder that PAXBOARD is firmly established as the architect's first choice for large-area acoustic insulation.

Full technical information available on request.

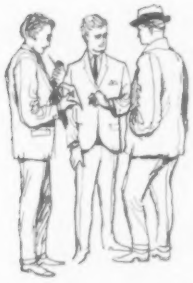
Newalls PAXBOARD

NEWALLS INSULATION CO. LTD. Head Office: WASHINGTON, CO. DURHAM

A member of the Turner & Newall Organisation

Offices & Depots at: LONDON, GLASGOW, MANCHESTER, NEWCASTLE UPON TYNE, BIRMINGHAM, BELFAST, BRISTOL and CARDIFF

Agents and vendors in most markets abroad



The OWNER says —
I like Arcon structures because they give me what I want — in this case a first-class, clean, spacious building, erected quickly and without fuss.

The ARCHITECT says —
The Arcon service helps me considerably — simplified planning, little or no expensive detailing, no structural engineering problems — and plenty of scope for good design.

The BUILDER says —
Arcon steel structures give me quicker completion — prompt delivery of components, earlier erection — and quality to be proud of!

THEY ALL AGREE ON ARCON

Arcon

SIMPLIFIES BUILDING

TAYLOR WOODROW (ARCON) LTD
41 WELBECK STREET · W1 · TEL: HUN 6666

The sponsor companies forming the Arcon Group are: IMPERIAL CHEMICAL INDUSTRIES LTD · STEWARTS AND LLOYDS LTD THE UNITED STEEL COMPANIES LTD · THE CRITTALL MANUFACTURING CO. LTD · TAYLOR WOODROW (ARCON) LTD

Only THERMODARE warm-floor heating combines solid-in economy with rewireability *at no extra cost!*

No architect can afford to ignore the unique advantages offered by the new Thermodare Underfloor Heating system. When the undoubted facility of rewireability is added to the proved efficiency and economy of solid-in systems *at no extra cost*, Thermodare becomes the automatic choice. Thermodare are Britain's foremost electrical heating engineers, and offer the fullest technical services. The time to call in Thermodare is in the earliest stage of planning. For full information and details of the complete Thermodare range of heating equipment—Night Storage Heaters, Infra-Red Heating and the new Thermodare Warm-floor Heating system—please write your name and address in the margin of this advertisement and post it to the address below.

THERMODARE EMBEDDED-REWIREABLE WARM-FLOOR HEATING

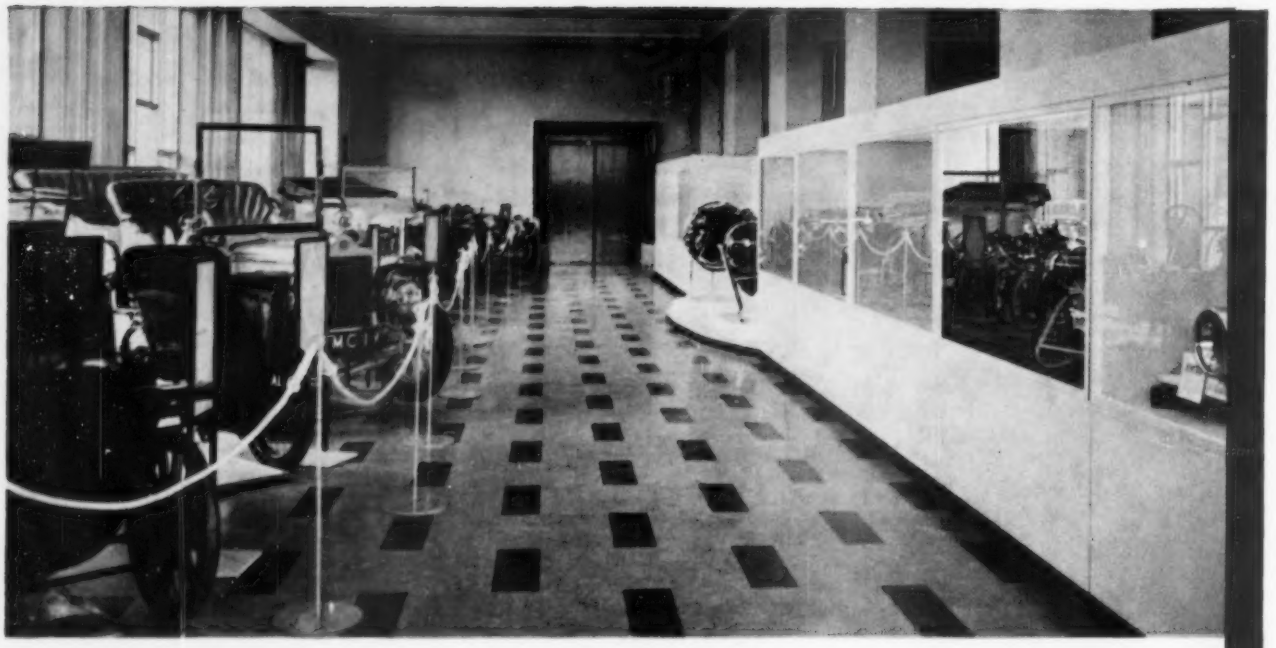
Thermodare (Great Britain) York Mansion, 94/98 Petty France, London, S.W.1. Abbey 6586-9

The **Demolition & Construction** Co. Ltd.

LONDON · CARDIFF · LIVERPOOL · NEWCASTLE-ON-TYNE

BUILDING AND CIVIL ENGINEERING CONTRACTORS

A Member of the Cementation Group of Companies



These floors in the Herbert Museum and Art Gallery, Coventry are covered with Williamson's heavy grade linoleum (4.50 mm.)

Modern linoleum for modern installations

Low capital cost, ease of laying, durability, minimum maintenance, quality of finish and appearance . . . judge how you will, Williamson's linoleum is unequalled as a commercial or industrial floor covering. From the design point of view, Williamson's offer a range of linoleums with colour values carefully chosen to complement modern decors. Designers and architects can find in this range just what they need to carry through a scheme—and carry it through economically. Specialised knowledge is readily available. For advice and information, please contact the Williamson Technical Advisory Service.

WILLIAMSON LINOLEUM

JAS. WILLIAMSON & SON LIMITED · LANCASTER · FOUNDED 1844

Architect: Herbert, Son & Sawday, F/A.R.I.B.A. Contractor: Coventry Tile Co. Ltd.

Top marks again for Carda as the new Shell Centre rises three hundred and fifty one feet into the future.
More than six thousand Teak double glazed Carda Windows are now being installed into the buildings as part of the largest order for multiple glazed fenestration systems ever placed.

THERMAL INSULATION • ACOUSTIC ATTENUATION • MAXIMUM SECURITY • COMPLETE ACCESSIBILITY

HOLCON LIMITED

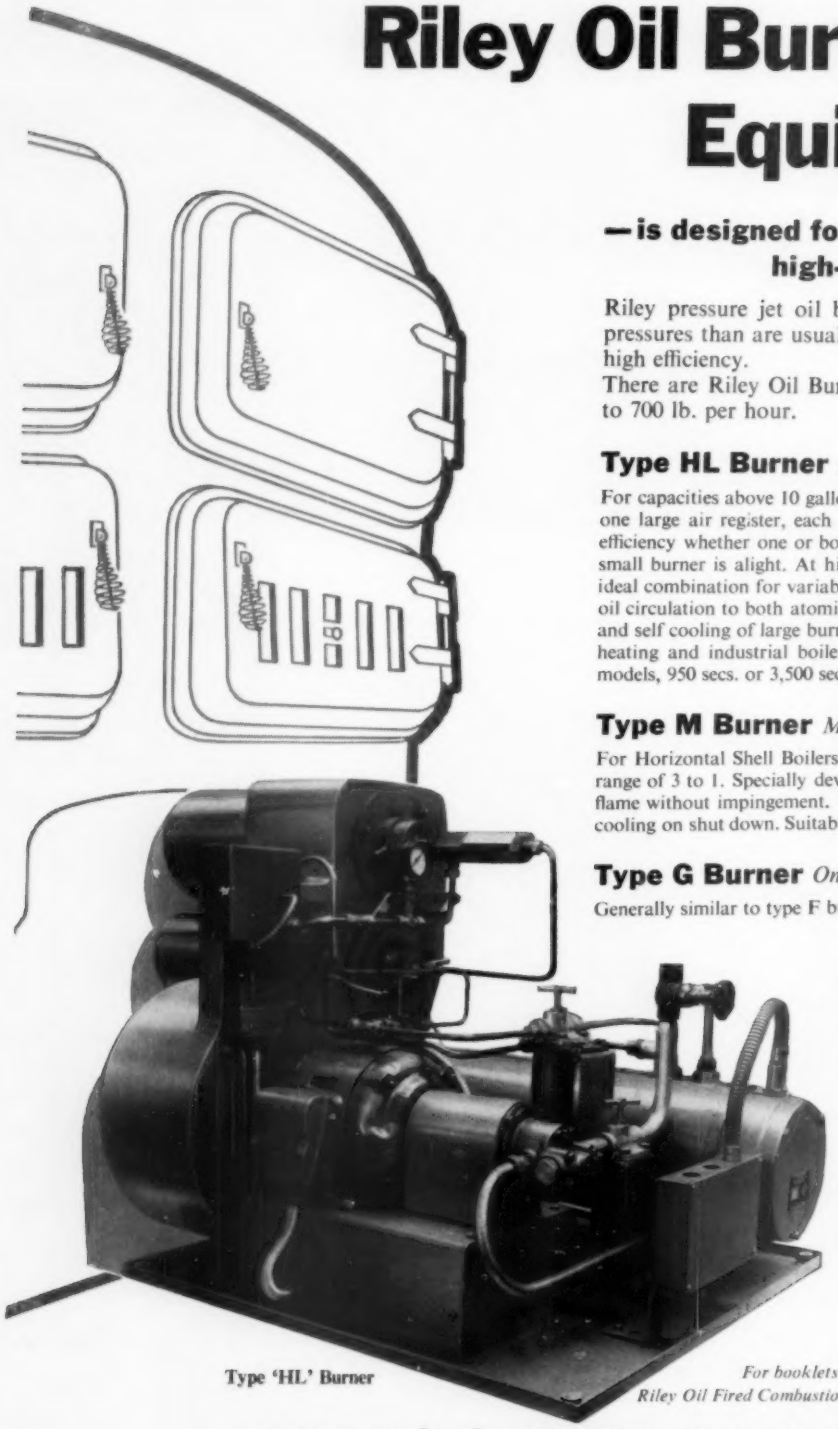
Illustration by courtesy of the Shell Photographic Unit

Carda
WINDOW
REG D TRADE MARK

21 Mackenzie St. Slough Buckinghamshire, Telephone. Slough 25431-2-3.

Maximum output with minimum input

Riley Oil Burning Equipment



Type 'HL' Burner

—is designed for consistent high-combustion efficiencies

Riley pressure jet oil burners exploit higher air and oil pressures than are usual today. They are factory-set to give high efficiency.
There are Riley Oil Burners with throughputs ranging up to 700 lb. per hour.

Type HL Burner *High/Low/Off Operation*

For capacities above 10 gallons per hour, incorporating one small and one large air register, each with its own atomiser, to give optimum efficiency whether one or both are in operation. At low flow only the small burner is alight. At high flow both are alight, thus giving an ideal combination for variable load conditions. Design allows for hot oil circulation to both atomisers before ignition to ensure clean start and self cooling of large burner on shut down. Used for most types of heating and industrial boilers, with 220 secs. oil and, on the larger models, 950 secs. or 3,500 secs. oil.

Type M Burner *Modulating Automatic Control*

For Horizontal Shell Boilers. Spill return type atomiser with output range of 3 to 1. Specially developed air register to give clean narrow flame without impingement. Hot oil circulation on starting and self cooling on shut down. Suitable for 220 secs. 950 secs. or 3,500 secs. oil.

Type G Burner *On/Off Operation*

Generally similar to type F burner but uses 40 secs. oil.

Type F Burner

On/Off Operation

Available in capacities from 20 lb. to 90 lb. per hour, using 220 secs. oil, Factory-set air/oil ratios and pressures give suspended intense flame and do not require further adjustment.

Riley Incinerators

A range of incinerators, for the disposal of rubbish and waste materials, is available. Write for full information.

For booklets giving full details of these burners, also Riley Oil Fired Combustion Chambers and Air Heaters, write to:-

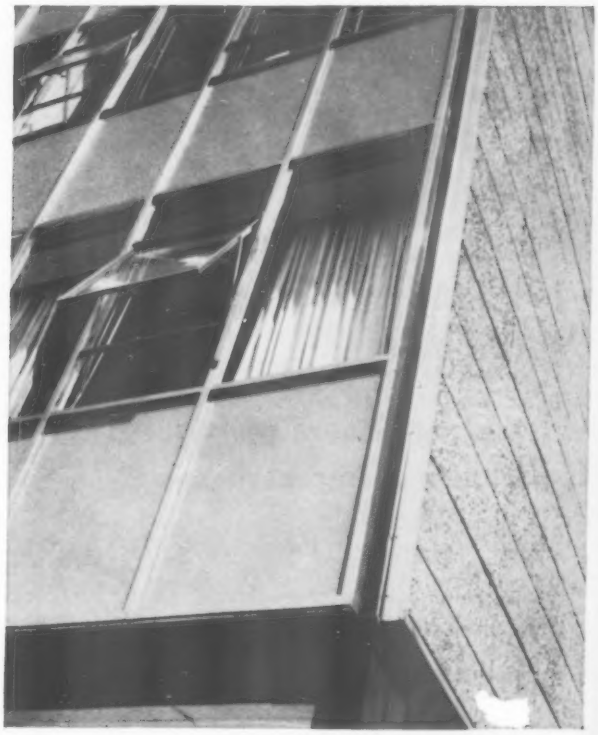
RILEY (IC) PRODUCTS LIMITED

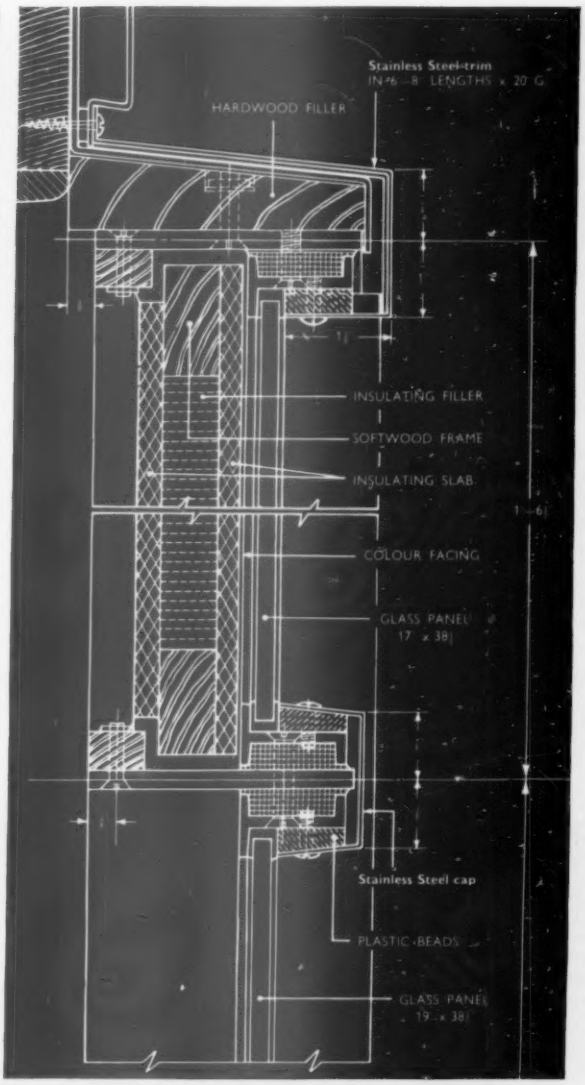
One of the International Combustion Group of Companies

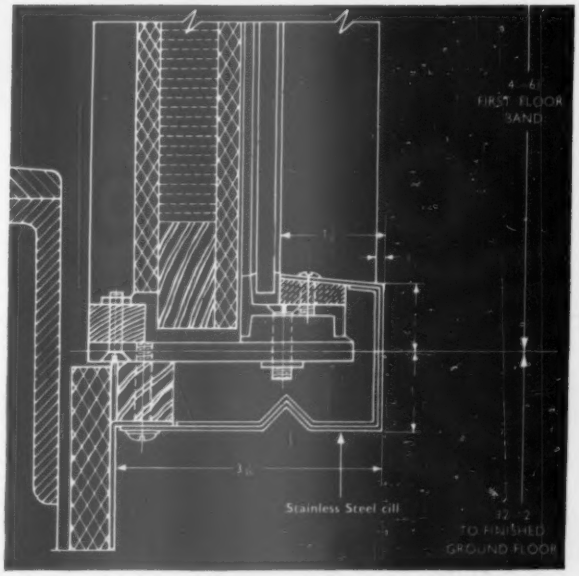
NINETEEN WOBURN PLACE · LONDON · WC1 TELEPHONE: TERMINUS 2622

Full comprehensive after-sales service is available from service depots at
BIRMINGHAM, BRISTOL, DERBY, GLASGOW, LEEDS, LONDON, MANCHESTER, MELTON MOWBRAY AND NEWCASTLE-UPON-TYNE

TGA RO7A







Bowater Paper Corporation Limited office and welfare block, Ellesmere Port.
Architects: Messrs. Farmer and Dark.
Curtain walling by John Williams (Cardiff) Ltd.

The cills, mullion cappings and trim for the curtain walls of this building are made from 20-gauge "Silver Fox" stainless steel, electro-polished. This material is also used decoratively in the construction of the main entrance.

Glass and polished stainless steel have been used to produce an effect of brilliance and dignity which is calculated to last, with very low maintenance costs, as long as the building itself.

STAINLESS STEEL IN ARCHITECTURAL DESIGN

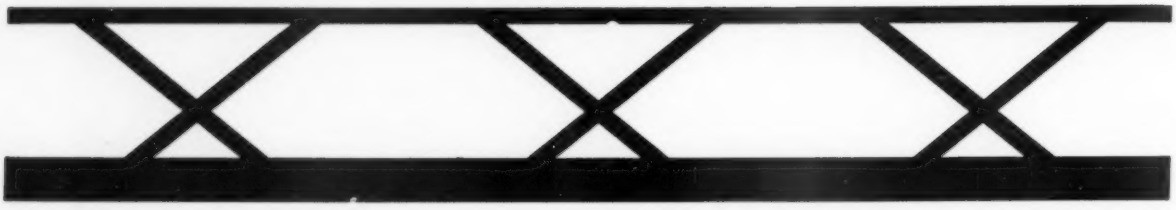
samuel fox
& company limited stocksbridge works sheffield

A subsidiary company of The United Steel Companies Limited

THE UNITED STEEL COMPANIES LTD

One floor of 13,500 sq. ft. per seven days —

OMNIA Concrete Floors contributed to remarkable construction speed in this major London office building



Friars House, Blackfriars, London
occupied by Central Electricity Generating Board
Architect: Robin Seifert, F.R.I.B.A.
Quantity Surveyor: Thompson & Alexander
Consulting Structural Engineers: Reinforced Concrete Steel Co. Ltd.
Contractor: George Wimpey & Co. Limited

Friars House, London, has a total of 90,000 sq. ft. of OMNIA Floors on eight floors, using 29 ft. spans with a live load of 120 lb./sq. ft. Spine beams are contained within the depth of the floor, giving clear soffits without any projecting beams. Erection was completed at the rate of one floor per seven days—a typical OMNIA success story. The OMNIA Floor combines precast and in-situ methods of construction and appeals particularly to the Architect because it spans economically to over 30 feet and gives a level and unbroken soffit without camber or bowing.

Light in weight, yet monolithic
Needs no shuttering
Easy to transport and handle
Quick and simple to erect
Spans up to 40ft.—no camber or bowing
Economical in manufacture and installation
Adaptable in design and for services

OMNIA CONSTRUCTIONS LIMITED, 121 London Wall, London E.C.2. Monarch 2272/6

The OMNIA Concrete Floor is available in all parts of the country from 15 OMNIA Licensees:

THE ATLAS STONE CO. LTD., LONDON
THE BLOKCRETE CO. LTD., SOUTHAMPTON
F. BRADFORD & CO. LTD., EDMONTON
BRADLEYS (CONCRETE) LTD., DARLASTON
G. W. BRUCE LTD., ABERDEEN
T. C. CAMPBELL LTD., NOTTINGHAM
COWLEY CONCRETE CO. LTD., ABINGDON
DERWENT CAST STONE CO. LTD., MALTON
DUNBRIK (YORKS) LTD., LEEDS
EDENHALL CONCRETE PRODUCTS LTD., PENRITH
HYDRAULIC PRECASTS LTD., NORWICH
JAMES K. MILLAR LTD., FALKIRK
PRESTATYN PRECAST CONCRETE CO. LTD., PRESTATYN
ST. IVES SAND & GRAVEL CO. LTD., HUNTS
SAMUEL TYZACK & CO. LTD., SUNDERLAND

. . . don't be a pawn!

new status for you at work

This life may be one of chequered fortunes, but there's a lot you can do to put luck on your side. To get on in the world, for instance, you need good office furniture as much as you need good clothes and a good manner. This is where Perrings enter the picture. Perrings are masters, past and present, in the art of office furnishing. Why not have them furnish you now with Hille new Status. Checkmate your boss— he'll be forced to give in. And you'll be well on the way to becoming a King on the Board.

THE CONTRACT DIVISION OF

JOHN PERRING

TIMELESS TREND

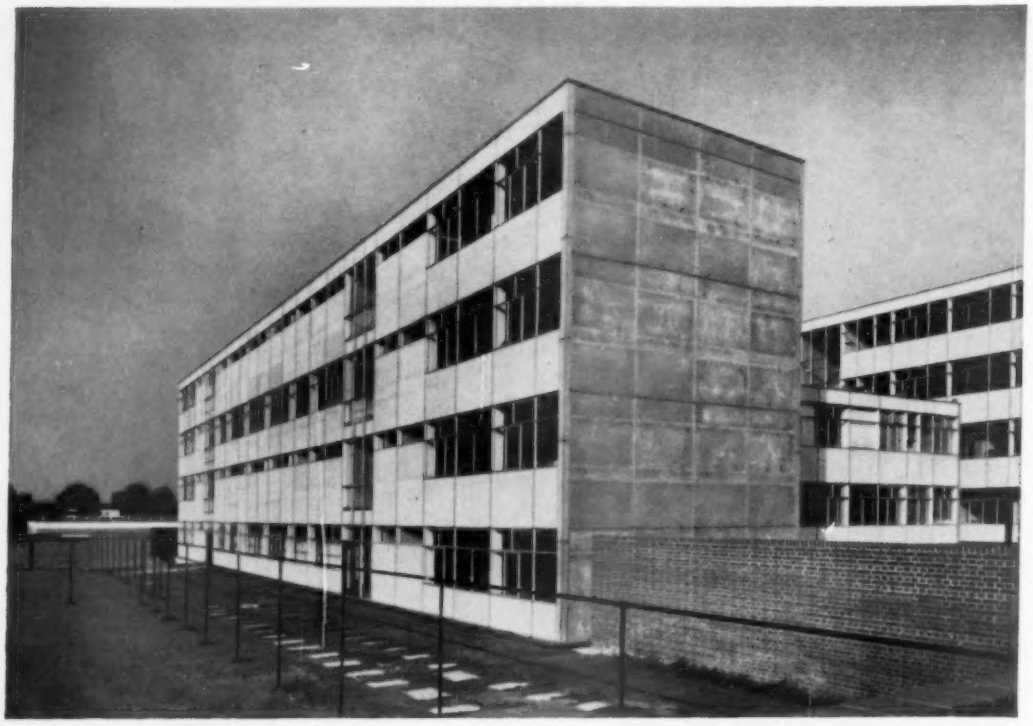
DESIGN
QUALITY
VALUE

13 BROMPTON ROAD KNIGHTSBRIDGE S.W.3

Phone: KNIghtsbridge 9388 • 9159

Furnishing Stores throughout Southern England

New Technical College for the Hertfordshire County Council at Letchworth, with aluminium curtain walling by GARDINER, SONS & CO. LTD. *No back-up wall is used and mullions have been dispensed with by use of interlocking framework. County Architect: G. C. Fardell,* M.B.E., A.R.I.B.A. *Former County Architect: The late C. H. Aslin,* C.B.E.



TOMORROW'S **CURTAIN WALLING**

—already taking shape with

ALCAN ALUMINIUM

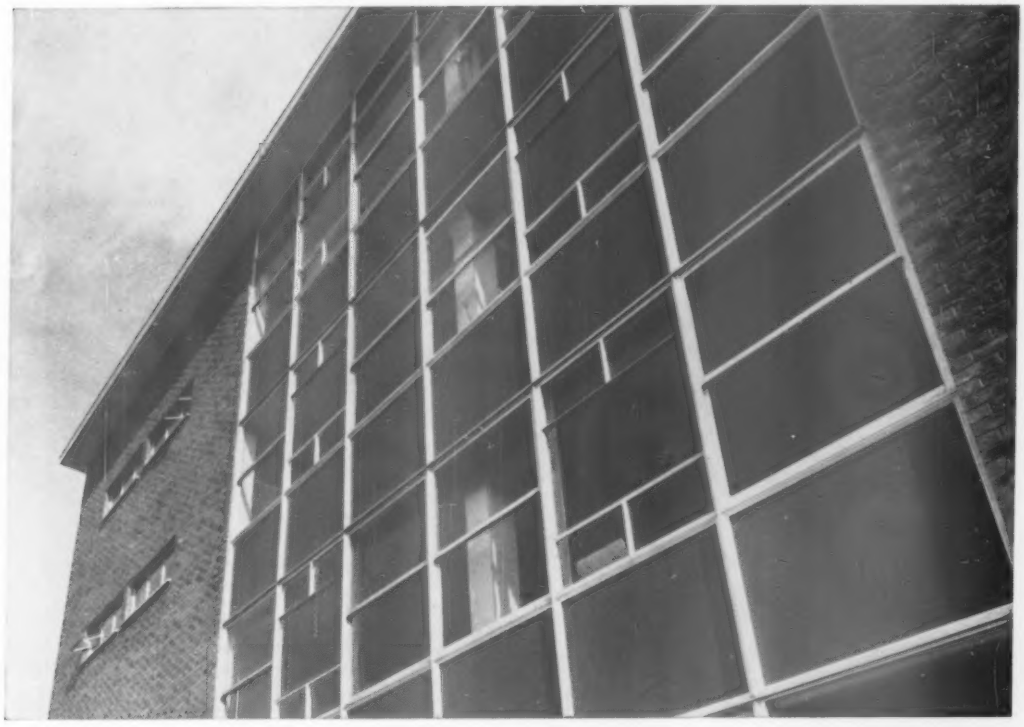
Lighter, stronger, and more quickly erected than conventional wall structures, the curtain walling and windows of today and tomorrow made of ALCAN aluminium are better than ever before. In its natural clean finish, or colourfully anodised, aluminium presents no problems of rust and lessens the cost of maintenance.

This view of the Soundwell Technical College, Kingswood, Bristol, shows the aluminium Panelgard curtain walling supplied by GARDINERS. *Architect: R. F. Fairhurst, Dipl: Arch. (L'pool),* A.R.I.B.A., A.M.T.P.I.

I.C.T. factory at Castlereagh with aluminium curtain walling construction. One extruded section was used to frame the curtain wall at head, sill and jambs.
Architects: Smyth & Cowser, F/F.R.I.B.A.

ALCAN
ALUMINIUM LIMITED OF CANADA

Aldridge 4 F.E. Grammar Technical School—another example of the use of 'Alwil' anodised curtain walling which is made by ALLAN H. WILLIAMS LTD. *of Coventry. Architect: A. C. H. Stillman,* F.R.I.B.A.



To the architect and designer

ALCAN aluminium means:

- *Freedom to create with no raw material limitations*
- *An opportunity to demand hollow or solid sections to conform with the most intricate designs*
- *Thinner, lighter, permanent walls, with a wide range of architectural expression*
- *Speedy erection*

To the building owner or occupier

ALCAN aluminium means:

- *More floor space due to thinner wall construction*
- *Lower fuel costs through more efficient insulation*
- *Light weight—cutting erection time and foundation costs*
- *No unsightly rusting or flaking, no painting necessary—and therefore lower maintenance costs throughout the life of the building*

The advantages of aluminium are at their greatest with ALCAN aluminium. ALCAN, one of the world's largest producers, are specialists in the ingot field.

To manufacturers, ALCAN specialisation means a constant, reliable source of aluminium in alloy forms, exactly – *consistently* – suited to precise needs.

To architects and designers ALCAN specialisation makes available a vast store of technical knowledge and experience ready to be applied to any project, backed up by years of fabricating technique.

To the user of every aluminium product ALCAN specialisation means a certainty of quality and the best value that money can buy.

'Alwil' aluminium curtain walling, manufactured by ALLAN H. WILLIAMS LTD. *of Coventry, was used for the administrative block of the A.E.I. Turbine Generator Division's Larne factory on an exposed site on the coast.*

ALLAN H. WILLIAMS' *'Alwil' curtain walling, colourfully anodised, with stove enamelled aluminium glazing beads, was specified for Aldridge County Secondary Modern School, Staffs. Architect: A. C. H. Stillman,* F.R.I.B.A.

ALCAN (U.K.) LIMITED · Aluminium Canada House · 30 Berkeley Square · London W1

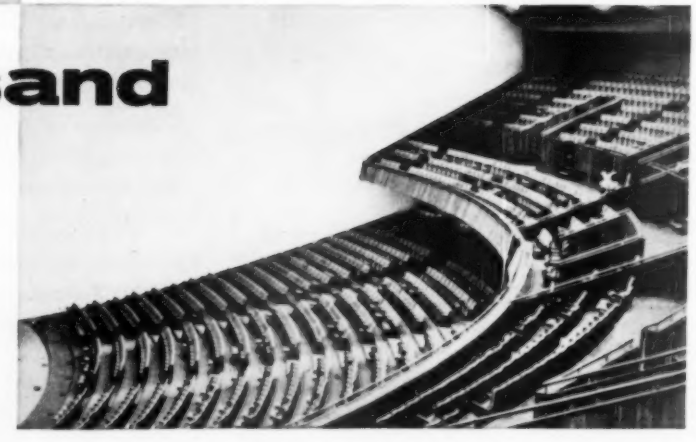
raw/x21

Take a seat...

Tip-up auditorium seating is our business. Lecture theatre seating with writing ledge; tip-up chairs upholstered in foam rubber for permanent floor fixing; economical tip-up seating for assembly halls where the floor must occasionally be cleared.

or two

or a thousand



All these and more make up our range. Plus all the help and advice, based on intimate knowledge of the subject and long association with architects and their problems, which we can give.

Have you seen our illustrated booklet? A copy will be sent on request.

Cox MAKE SEATING A SCIENCE

COX & CO. (WATFORD) LTD. · WATFORD BY-PASS · WATFORD · HERTS

Telephone; Watford 28541

Space saving insulation with

THERMALITE

Loadbearing insulating building blocks

1 In these single storey homes at Crowthorne in Berkshire, designed and built by Renway Construction Company Limited, 3″ Thermalite Blocks are being used for the loadbearing inner leaf of external cavity walls. They will provide a high degree of *extra* insulation *plus* an overall saving of internal floor space.

Properties of Thermalite.

1. Dry density 50 lb./ft.³
2. Compressive strength to BS:2028 type A.
3. Moisture movement/drying shrinkage to BS:2028 type B.
4. Thermal conductivity (k) 1.4 B.T.U.'s, etc.
5. Nominal face size 18″ x 9″ or 9⅛″, actual sizes 17⅞″ x 8⅝″ or 9⅛″ x 2½″, 3″, 4″, 5″, 6″ and 8⅝″ (tolerance to BS:2028).
6. Fire resistance 4″ loadbearing plastered hot face—2 hour grade. Fire resistance 4″ non-loadbearing unplastered—4 hour grade.

2 The photograph shows the neat returns to the reveals, typical of Thermalite construction. No special Corners or Closers are necessary; Thermalite Blocks are readily and accurately sawn. The 3″ thickness of the inner leaf can clearly be seen.

3 Thermalite is particularly suited to dry construction. Direct reliable fixing without need for plugs further reduces the cost of this economic construction method. Note, too, that the cable channelling is spiked directly to the Thermalite wall for speed and simplicity.

For further information and samples apply to:

THERMALITE YTONG LIMITED

Hams Hall, Lea Marston, Sutton Coldfield, Warwickshire.
Telephone: Coleshill 2081.

A LAING COMPANY

450,000 HOSPITAL BEDS ON HARDWOOD FLOORS

Beds—row upon row, in ward after ward. Standing foursquare, or being moved, pushed, wheeled—on durable hardwood floors. In miles of busy corridors too, floor surfaces must carry the never-ceasing traffic of hospital activity. Durable, resilient hardwood floors have proved to be the best-equipped flooring to withstand this arduous wear.

Quiet floors, comfortable floors to walk on, a pleasure to the eye, easily maintained . . . Permanent floors that repay their cost by giving years and years of faithful service. For hospitals, specify hardwood floors always. They last longer. They need the minimum of nursing through the years to come.

TAKE STEPS TO FIND OUT MORE ABOUT HARDWOOD FLOORS THEY'RE CHEAPER IN THE LONG RUN

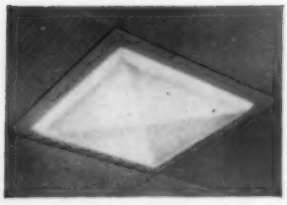
The Hardwood Flooring Manufacturers' Association or the Timber Development Association will be glad to supply you with design data and full information on the characteristics of the many hardwood species now available for floors to meet all conditions of service.
Write to The Hardwood Flooring Manufacturer's Association, 68/70 Queen Street, London, EC4

TGA TD170

TUBALUX MODULE FITTINGS

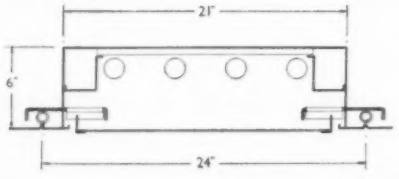
TUBALUX MODULE FITTINGS are designed for incorporation with 2 ft. x 2 ft. or 2 ft. x 1 ft. module ceiling panels. The standard fitting incorporates adjustable bolts at each corner for use in ceiling panels manufactured by:— Frenger Ceilings Ltd.; Burgess Products Co. Ltd.; Horace Cullum Ltd.; and with their co-operation we can arrange for the weight of the fitting to be taken by the suspended ceiling. Alternative methods of suspension can be provided for other types of suspended ceiling based on this module.

Module fittings are made from sheet steel which is bonderized and finished in white stoved enamel. Instant start or switch start control gear is mounted in two removable channels along opposite sides of the interior and supplied ready wired to a fused terminal block easily accessible for connection to mains supply. Interchangeable diffusers in obscured 'Spotlyte' glass with removable hinged frame, polystyrene louvres, or dished opal 'Perspex', are available. The diffusers allow easy access for maintenance and cleaning.

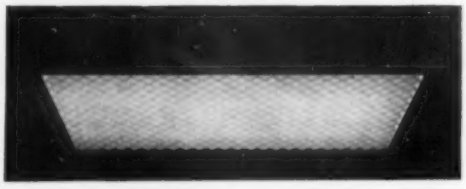


OPENING 2FT.x2FT.

T254 Glass Diffuser
T264 Polystyrene Louvres
T274 Dished Opal 'Perspex' Diffuser
Lamps. Four 20W. 2 ft.

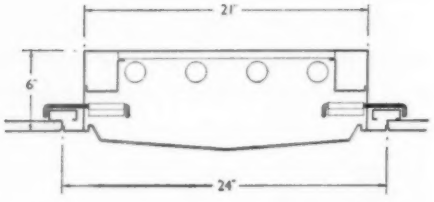


FRENGER CEILING GLASS DIFFUSER



OPENING 2 FT. x 4 FT.

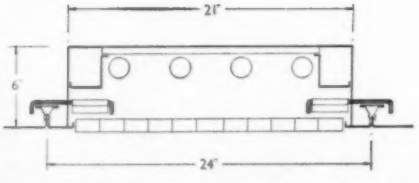
T454 Glass Diffuser
T464 Polystyrene Louvres
T474 Dished Opal 'Perspex' Diffuser
Lamps. Four 40W. 4 ft.



CULLUM CEILING DISHED 'PERSPEX' DIFFUSER

OPENING 2 FT. x 6 FT.

T554 Glass Diffuser
T564 Polystyrene Louvres
T574 Dished Opal 'Perspex' Diffuser
Lamps. Four 80W. 5 ft.



BURGESS CEILING POLYSTYRENE LOUVRE DIFFUSER

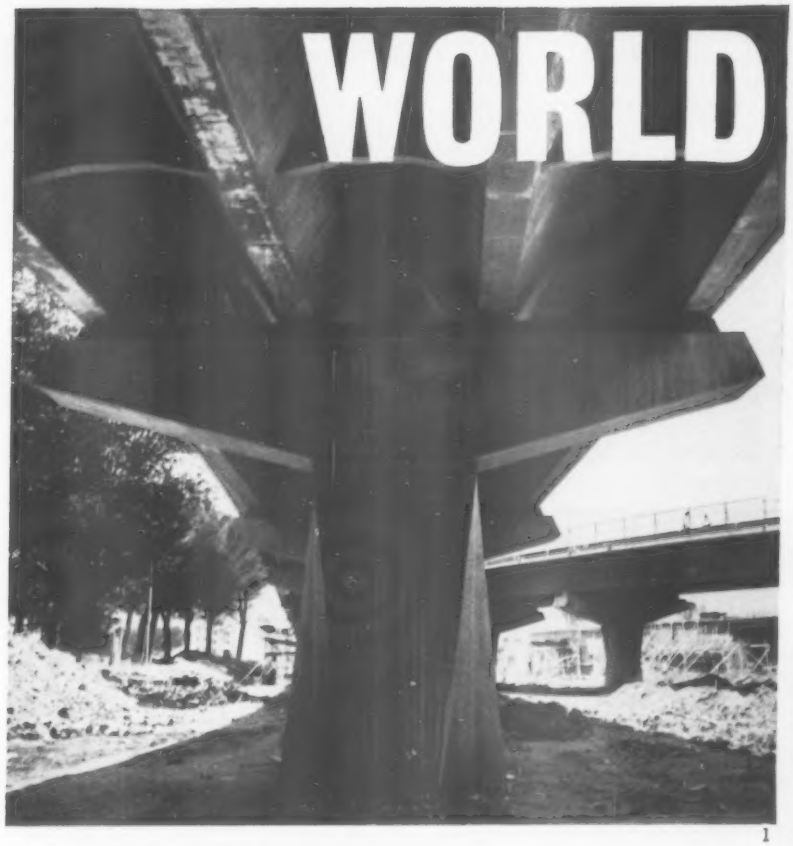
TROUGHTON & YOUNG

Prices may be obtained on application.

THE MODULAR SOCIETY LIMITED

TROUGHTON & YOUNG (Lighting) LTD. *The Lighting Centre*
143 KNIGHTSBRIDGE, LONDON, S.W.1. 'Phone KENsington 3444
and at Rodney Street, Liverpool 1.

RFW 2P



1

OLYMPIANA

buildings for the 1960 Games in Rome

Whoever wins what in the Rome Olympics (these words, of necessity, are written before the results are known) there seems a fair chance that, in Italian eyes, one of the gold medals ought to go to Pierluigi Nervi. Not only are stadia and Palazzi (grande and piccolo) dello Sport to his credit, but also the new approach motor-roads by the Ponte Flaminio, stalking briskly cross-country on the T-legs seen in 1, and put together with customary Nervesque ingenuity from in-situ cast uprights and pre-cast, trough-section beams, 3, to carry the road-bed.

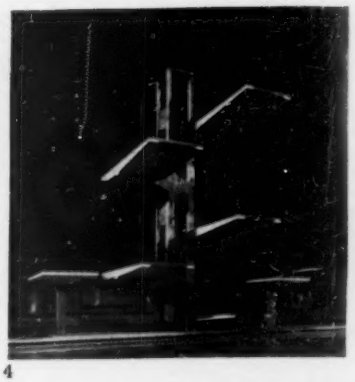
In the meantime, the completion of the Olympic village has been greeted with rather mixed feelings. Clearly, Luigi Moretti had a difficult task, in that his brief required the village to be convertible, post-Olympically, into a housing estate for bottom-grade civil servants, and—clearly again—this could not be the Moretti of the brilliant luxury one-offs like the celebrated Casa del Girasole. Even so, it is felt that the result is rather hard-faced, ascetic rather than athletic, 2, though the landscaping may do something to soften the effect.

2

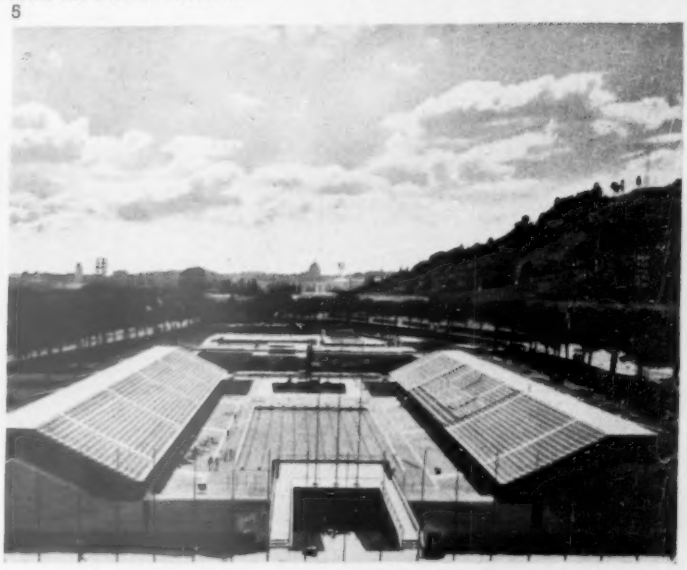
3

To counterbalance any disappointment that may be felt about the Village, however, there is one part of the Olympic scheme that appears to have turned out better than anyone hoped—the swimming stadium. The basic project goes back to Enrico del Debbio's original, Fascist, conception of the Foro Italico, and one or two depressingly sub-classical buildings flank the enclosure. But the pool, its attendant seating ramps, 5, gardens and children's playground, fitted into a magnificent site, tucked between the Monte Mario and the Tiber, and ringed by Roman pines, seems to be an unqualified success. del Debbio's collaborator on this last work of a scheme he began in 1926, was Annibale Vitellozi, and one wonders which of the two partners was mainly responsible for the diving boards, 5, which are by no means the riot of spatio-sculptural effects that might well have been produced for such an occasion.

4



5



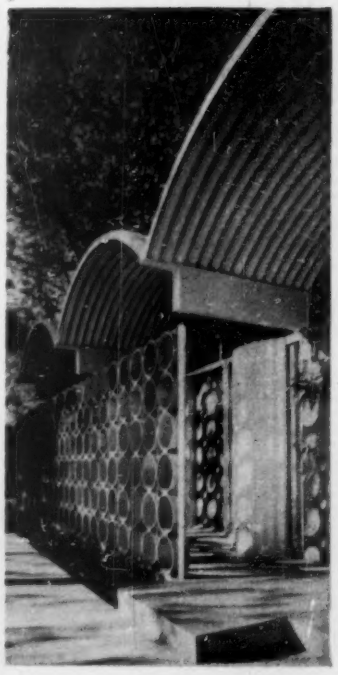
MON ONCLE SAM

corrugated asbestos house in Oklahoma

One of the key points in the sustained attack on the Anglo-American way of life that ran all through Jacques Tati's brilliant film *Mon Oncle*, was the proposition that everything Anglo-American, including grand pianos, was made of corrugated asbestos. Delighted Anglo-American laughter greeted this obviously absurd proposition, but how is the laughter now, when an all-corrugated-asbestos house, 7, with much the same pretensions as that of Monsieur Hulot's brother in-law, has actually been built in America? The house is described with all the panache of Madison Avenue rhetoric in *Asbestos Cement Quarterly* (3/1, 1960) as a 'significant structure' of the sort that is required if 'Americans are going to remain the world's most comfortably and attractively housed people.' However, examination

6

7



corrugations: USA

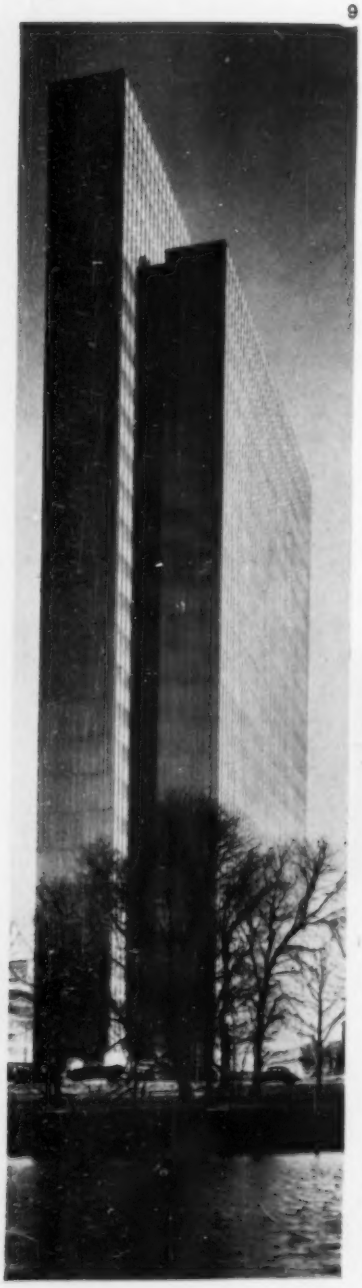
of R. Duane Connor's design reveals a house that follows a design trend established for preformed plywood vaulting in the Saul Bass House (Marginalia, May, 1959) and seems to draw little from the nature of its chosen material, except some interior effects surprisingly close to those in *Mon Oncle*, 6, and some garden architecture that it is difficult not to regard as deliberately humorous, 8.

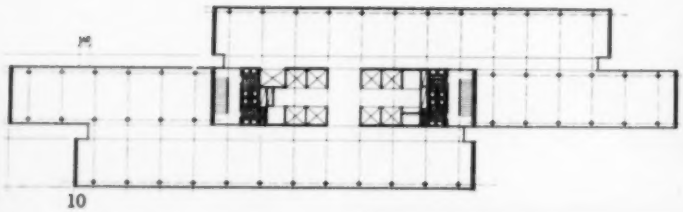
8

THYSSENHAUS

Hentrich skyscraper in Dusseldorf

9





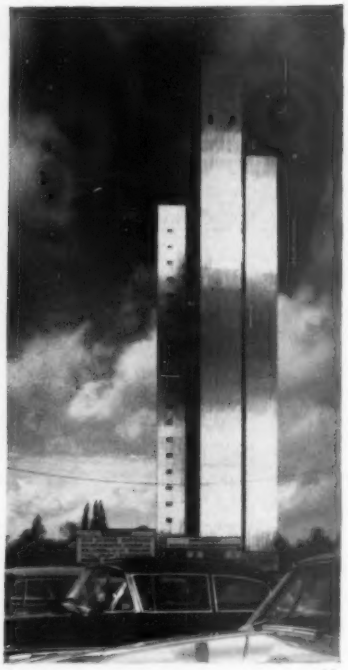
10

The Phönix-Rheinrohr tower (strictly: Das Thyssenhaus) in Dusseldorf made a marginal appearance in the discussion of German theatres in August *World*, but this building by Hentrich & Petschnigg deserves more than marginal treatment. Its triple-slab form has already been the subject of much comment, 9, though the plan reveals that its layout is not as simple as at first appeared—the central slab is thicker than the two smaller flanking ones, 10, but the structure reverses this situation, and the flanking bays are wider between column centres than those of the central rank. The columns themselves, as is well known, are tubular (thus maintaining the corporate image of the tube-manufacturing company that occupies it) and appear without disguise—as in this view of the cafeteria, 11, which also shows the spatial effect

11

of the junction between the central slab and one of the flanking ones, whose end-wall, faced in corrugated material to cover the massive diagonal wind-bracing, can be seen through the window. During the project stage, and the early period of its construction, some fears were expressed in Dusseldorf and the Rhineland generally that the building—in spite of its structural and mechanical ingenuities—would turn out to be just a slab. In fact, most of the flank-wise views that might show its full width are masked by the trees in the Hofgarten, 12, while the end-wise views, 13 (and compare 9, left) are far from slab-like, and reveal a building that seems, in some ways, to fulfil some of the promise of Mies van der Rohe's early projects for skyscrapers in Berlin.

12

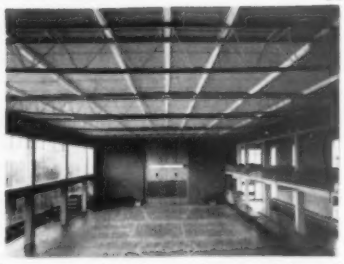


13

STUDENTS UNION IN NATAL

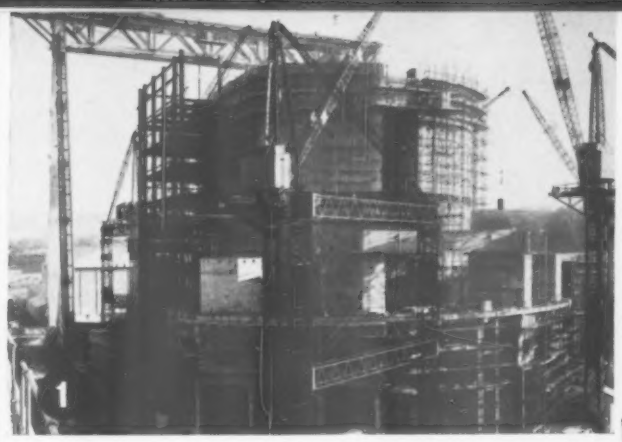
British architects who have to grapple with University infill building designs (such as those described in AR August, 1960) may not realize that similar problems occasionally confront architects designing for Universities in 'new' countries, such as South Africa. In the new Students Union for the University of Natal, at Durban, the roof line of the hall, which lies behind the block on the right in 14, had to be kept down as low as possible for the sake of University views from the main access road—and has, in fact, been kept so far down that it is only just visible in this view.

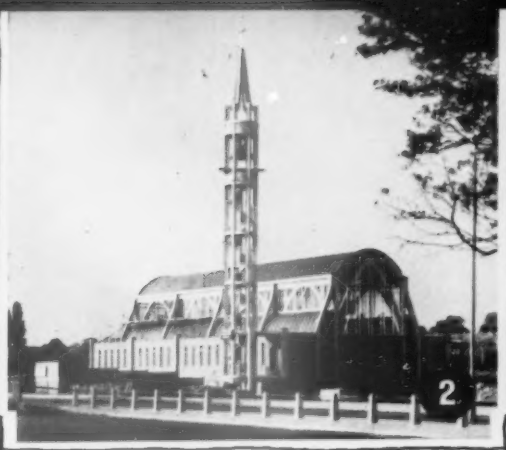
15

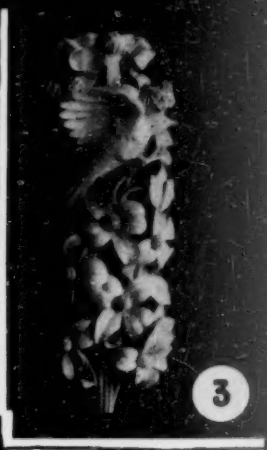


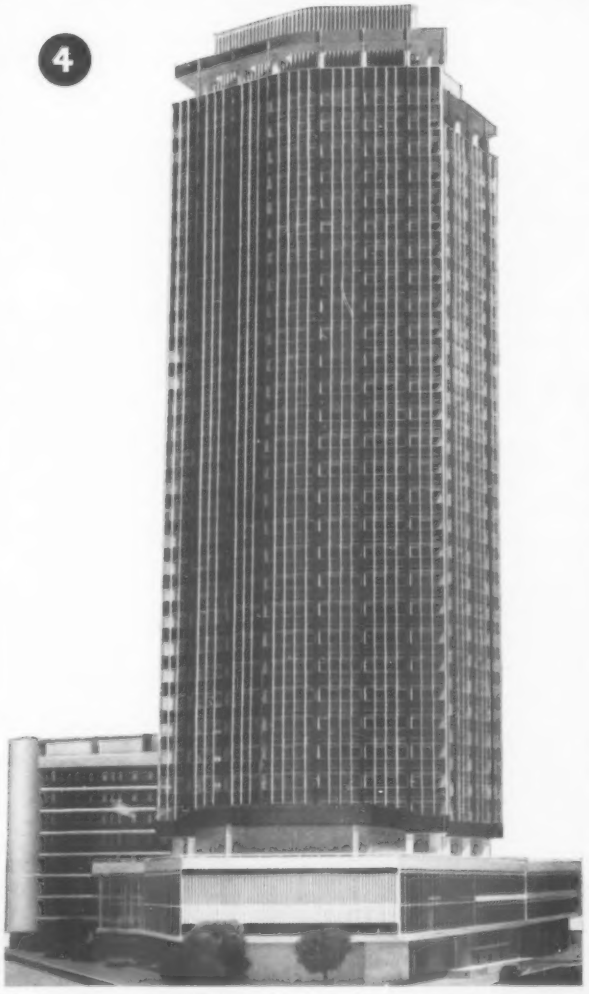
Internally, the resultant problem of creating a flat roofed clear span of sixty feet has been solved by the consulting engineer, J. R. Daymond, with neat, welded steel-tube trusses, 15, that do not impinge too far into the overhead space of the hall, which will have to be used for practically every purpose, serious or sporting, in the academic calendar. Beneath the residential tower visible in 14, the ground floor is given over almost entirely to

14









1 NUCLEAR POWER STATION IN SCOTLAND
At Hunterston the two 182-ft-high towers are ready for the installation of the reactor 'spheres'.

2 CHURCH AT STEVENAGE
H.M. The Queen Mother laid the foundation stone for this Parish Church of St. George at Stevenage New Town. Consecration is planned for later this year.

3 CARVING IN ST. PAUL'S
The Dean declared Rattee & Kett's work worthy of being placed alongside Grinling Gibbons' when the Mowlem-built American Memorial Chapel was opened.

4 SKYSCRAPER ON MILLBANK
Soil Mechanics' work on this site by the Tate Gallery laid the foundations for London's tallest building. Mowlems are well ahead with the construction of the 32-storey tower.

5 GATES AT CAMBRIDGE
Built 1575, restored 1959. An honorary degree was this year conferred on 79-year-old Mr. W. H. Topper of Rattee & Kett Ltd who carried out the restoration.

All the illustrations are of work by The Mowlem Group of Companies.

MOWLEM (AFRICA) LIMITED	MOWLEM (BUILDING) LIMITED	JOHN MOWLEM & COMPANY LIMITED	MOWLEM (SCOTLAND) LIMITED	RATTEE AND KETT LIMITED
THE IMPROVED WOOD PAVEMENT CO. LTD	MOWLEM CONSTRUCTION CO. LTD	MOWLEM	MOWLEM (CIVIL ENGINEERING) LIMITED	CONSTRUCTIONAL SERVICES LIMITED
SOIL MECHANICS LIMITED	WEBBER & CORBEN LIMITED		THE MOWLEM PAVING CO. LTD	PORT & HARBOUR FENDERS LTD

The Head Office of the Mowlem Group of Companies is at Ebury Bridge Road, London, S.W.1

rotaflex

exciting lighting

Another exciting range of lighting fittings
from Rotaflex—
the 'D' range of display lighting fittings
available as pendant, wall and ceiling fittings.

Rotaflex exciting lighting for industrial,
commercial and domestic use—a lighting service
geared for the production of lighting
fittings for all special schemes.

Send for a copy of the new display fittings
folder or the Rotaflex general catalogue.

ROTAFLEX (GREAT BRITAIN) LIMITED

Works: 4-10 Nile Street, London, N.1. - Tel. CLErkenwell 2288

Showrooms: 4 Conduit Street, London, W.1 - Tel. MAYfair 5666/7

*Illustration shows wall fittings (D3/W/100, D5/W/100)
recessed ceiling fitting (D6/100) and pendants (D2/P/100)*

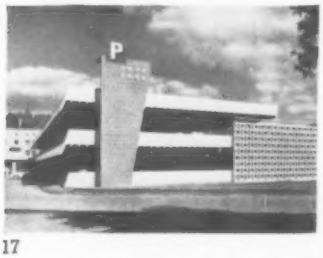
Natal union

public spaces, hall, refectory, staff dining room and lounge, while externally, the architects Professor P. H. Connell and Alan Williams, have made neat use of aluminium sun-breakers, 16, and internal venetian blinds to secure adequate sun-control on a curtain wall elevation.

16

PARK-HAUSER

Barely had Michael Brawne's article on *Parking Terminals* gone to press (AR August, 1960) than *Deutsche Bauzeitung* produced a number (5, 1960) devoted almost entirely to parking and garaging. Most of the schemes shown had not previously been illustrated outside Germany, many were not particularly brilliant, but one or two were well worth noting, some as curiosities—Gerd Wiegand's Parkhaus



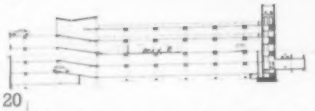
17

Grottenau in Augsburg has an Olde-Time Californian Moderne air about it that strikes a weird note in Germany, 17—but others on more solid grounds, and even Grottenau has some striking rampscapes, 18.

18

Indeed, another scheme by Wiegand, the Breuninger in Stuttgart, 19, gives a

19



20

stylish solution to a project, 20, which calls for two open decks above ground and two closed ones below, with a central control point at ground level. The Parkhaus am Zoo, in Berlin, by

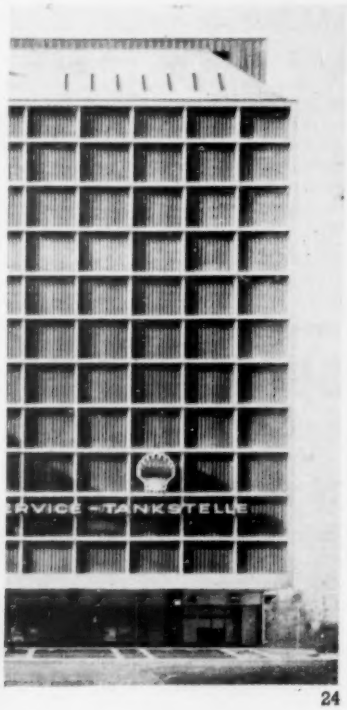
21

Paul Schwebes, makes an architectural virtue, 21, of its pedestrian access, but is more notable as an integral part,

22

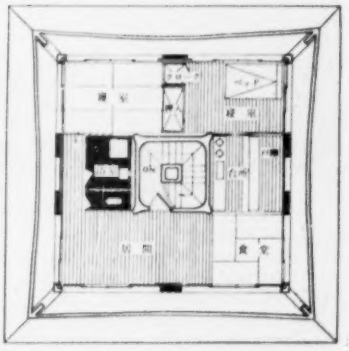
and completion, of a large building complex, being tucked under, 22, one end of the huge *Zentrum am Zoo* development. Finally, one should note that there seems a general trend towards treating mechanical parking garages as street architecture with definite façades, and that as street architecture most of these seem to be definitely inadequate. An exception might, however, be made for the Neuer Markt garage, in Vienna, operated on the Austrian Wertheim system, in which cars may be moved sideways on the floor of the lift, so that, in this case, four lifts each fill four stalls (two in front, 23, two behind) on each of fourteen usable floors. However, the external treatment is independent of the system employed, and the architect Karl Schwanzer has simply given every car a bay, 24, and filled it in with corrugated wired Perspex.

23



24

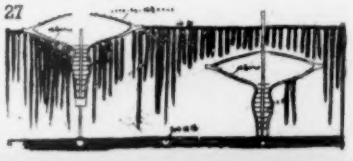
Behind the resoundingly rectangular concrete structures that have brought Japanese architecture up to a position among the world's leaders, there seems to lurk a counter-urge towards forms that can only with understatement be described as 'organic.' Under the top paper of practically every Japanese drawing board there must be projects for ring or mushroom shaped buildings —whole cities even—floating in the sea or anchored to the sides of mountains, to judge from the regularity with which such projects appear in Japanese magazines at present. And it now appears possible that the project phase may be coming to an end—Kokusai Kentiku (4, 1960) has just published a



26

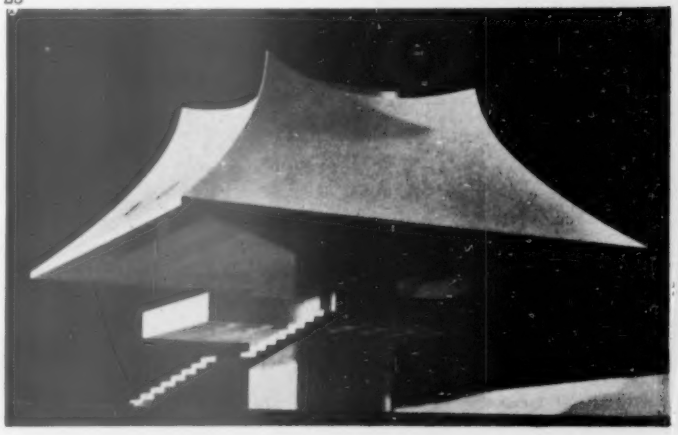
MUSHROOM HOUSE

proposed house by Noriaki Kurokawa, 25, that clearly comes close to a buildable structure of a plausible size and type. If it has lost some of the fine careless rapture of some of Kurokawa's marine proposals, 27, its plan at main floor level, 26, suggests a fairly



27

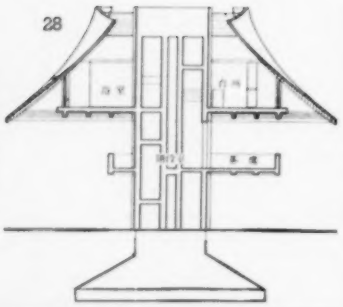
25



mushroom house

normal domestic plan, though how Japanese residents would take to a house that restricted outward views to sky and ground, is a matter for speculation; as the model shows, and the section confirms, 28, the vault is unpierced and allows only upward and downward views.

28



SUCCESS AND JEAN TSCHUMI

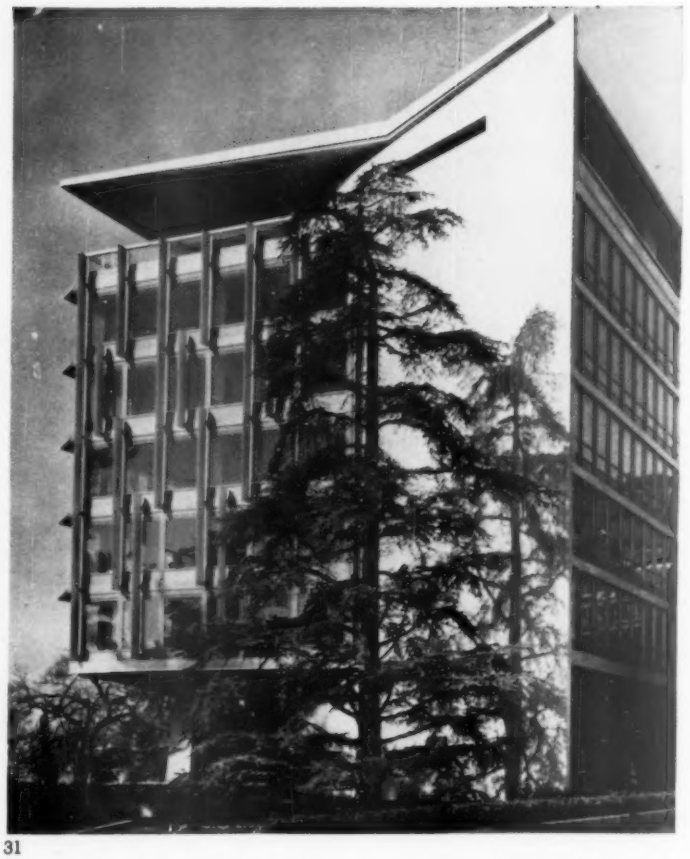
two major awards for Swiss Architect

29

The 1960 Reynolds memorial award caught Jean Tschumi at the beginning of a winning streak. The award, made in April, was for his Y-plan office block, 29, for Nestlé International, at Vevey in Switzerland. As usual with the Reynolds awards, it seems to honour the use of aluminium detailing in places where it shows, rather than its radical employment in structure or services. In Tschumi's case, it shows to considerable advantage in sub-structures like the sun-breakers, 31, or the entrance-porch, 30, even though the technical data issued with the assessors' report makes it clear that the 'other materials' employed—reinforced concrete, structural steel and sealed heat-absorbent double-glazing—account for most of the essential structure.

Barely had the applause died away, than Tschumi also collected first prize in the international restricted competition for the design of a new headquarters building for the World Health Organization, Geneva. His design, 32, was a plain, straightforward affair—though no more plain and straightforward than those of Hentrich and Petschnigg, or Jean Dubuisson—that clearly came through on sheer functional and planwise competence and,

30



31

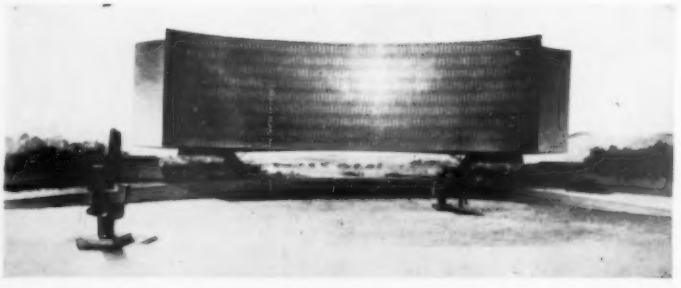
Nestlé office

no doubt, first hand knowledge of the design of offices for Swiss conditions. Formal bravura collected a second prize for Eero Saarinen, in the shape of a design, 33, for which one would very much like to see the structural engineers' calculations, since it appears to span something like 200 feet unsupported.

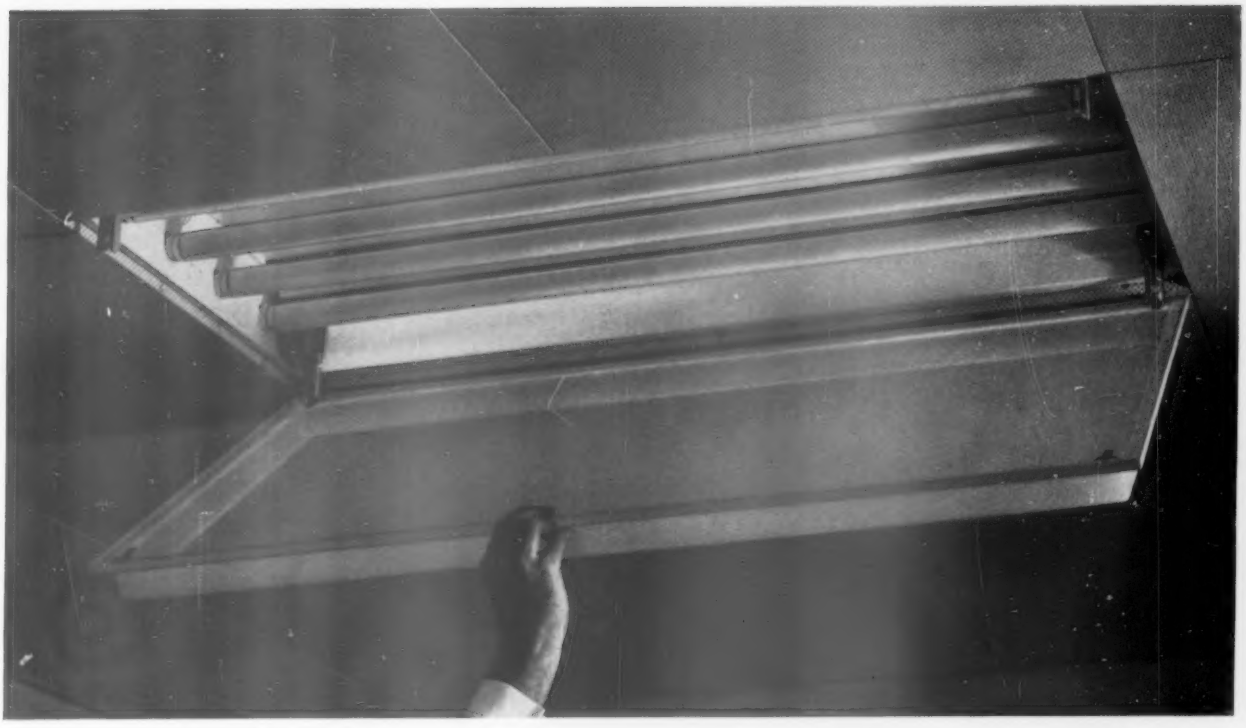
W H O headquarters

32

33



ALLOM HEFFER
AND COMPANY LIMITED



The recessed fittings illustrated are made in various sizes and incorporate a completely new method of securing simple maintenance by means of the Allom Heffer patent locking device (Patent Application No. 32933/59) which provides:

- A positive method of opening and shutting on a pull-push principle.
- Hinging on either side of the fitting when fully clear of the ceiling.
- Complete detachment of the diffuser when required.

Apply for Brochure series 707

17 MONTPELIER STREET • KNIGHTSBRIDGE • LONDON • SW7 • TELEPHONE KNIGHTSBRIDGE 6897-8

furnished by Harrods

Contracts Dept., Third Floor

Specialists in the planning & furnishing of executive suites and offices

HARRODS LTD SLOane 1234 LONDON SW1

views and reviews

MARGINALIA

THE TWELFTH TRIENNALE

On July 16, the day of the official opening of the twelfth Triennale di Milano all but a few minor sections were complete—a post-war record on which the organizers are to be congratulated. Among the uncompleted sections, surprisingly enough, was the ALCOA house, designer John Matthias, from the USA. The German and French sections had been completed some days before, and dust-sheeted; the British section had been completed even sooner, but was too big to put under wraps. As was reported in the July *Marginalia*, the British contribution was a complete CLASP/Notts County Council school, the largest single foreign exhibit ever shown at the Triennale, and the largest free-standing pavilion ever put up in the Parco Sempione—where it looked surprisingly at home.

The message of the Notts school, that it was a more-or-less standardized off-the-peg product, has clearly been understood by architectural circles in Milan, who were equally clearly impressed. Whether it will make any equal impression on educational politics in Italy remains to be seen—many hard-pressed Italian educators may well feel that their problems, particularly in the south, are more akin to those intended to be solved by the remarkable part-prefab, part wet-work, part technological/part peasant-handicraft, schools shown in the Mexican section, an inspiring display of radical thinking applied to a desperate problem.

Other visiting nations applied themselves indifferently, sometimes not at all, to the official theme of the Triennale, which was 'The home and the school,' ranging from the French and Belgians who, in rather dull displays, showed some school equipment and components, to the Dutch and Czechs, who made no visible reference to either subject at all. The Dutch, instead, staged a rather gay and inconsequential two-screen slideshow, while the Swiss staged a three-screen film show about their schools.

The Italian section, occupying more than an entire floor of the Palazzo, was largely a display of home and school furnishings; the latter ingenious, straightforward and functional, the former a daunting demonstration of the extraordinary condition into which Italian cleverness in interior design has cornered itself. An illustrated report on the Triennale by Kenneth Browne will appear in the November AR.

SAVING SMIRKE

When the Royal College of Physicians translates itself to its new building in Regent's Park, described on pages 214-216 of this issue, its existing building will be taken over by the High Commissioner for Canada, whose headquarters, Canada House, occupies the rest of the same island site on the west side of Trafalgar Square. The architect of both buildings was Sir Robert Smirke, Canada House being originally the Union Club, and both were completed by 1827. Subsequently, the Union Club side was transformed (if that is not too delicate a word) by Septimus Warwick, to become Canada House in 1925, but the Physicians' side has undergone no consequential conversion or modification, and stands now as one of the best, though least known, of Smirke's surviving works—1 shows the entrance hall and column screen at the foot of the stairs. It is to be hoped that no latter-day Septimus Warwick will be called in to transform this half of the site as well, and that the High Commissioner will be able to use it for some purpose that will not reduce it to the status of a museum exhibit, but alive and in use for some function that gives the public occasional access to it.

LITURGY AND ARCHITECTURE

Peter Hammond's promised book *Liturgy and Architecture** has been awaited with interest ever since his pioneer article (which he modestly fails to mention in the book's bibliography) on liturgical church planning in the AR for April 1958. The book gives—as it should—a far fuller picture of the theological background to the Liturgical movement, and also considers more fully its pastoral implications, so that there is no chance of regarding liturgical planning as something purely internal to churches, and unrelated to the life of the parish outside. A much larger number of individual churches is subjected to critical analysis than was possible in the original article, though its coverage in time it still not quite long enough to include the completion of England's first resolutely liturgical-plan church, St. Paul's, Bow Common. It is hoped, however to publish this church in some detail in a forthcoming issue of the REVIEW, and readers will then be able to judge for themselves the extent to which it has fulfilled the liturgical programme set out *in extenso* in *Liturgy and Architecture*.

*Barrie and Rockliff. 37s. 6d.

OBITUARY

H. B. CRESWELL

The present generation of readers of the AR will remember H. B. Creswell most immediately as the author of a memoir of architectural life in London in the Eighteen-nineties, which appeared in these pages in December 1958 some eighteen months before his death. But his contributions to architecture and its literature are far more extensive than that. As long ago as the May 1942 issue of the AR, Nikolaus Pevsner drew attention to Creswell's part—a factory at Queensferry—in a British modern movement of the nineteen-hundreds that didn't quite come off.

Yet Creswell's main contribution to the architectural thought of the time was conducted at the most purely practical level, though in sufficiently imaginative terms to gain it acceptance as re-printable fiction. These were the Honeywood and Jago 'novels.' *The Honeywood File* was serialized in the *Architects' Journal* in September-November 1929 (reprinted in book form in 1929 and 1943); *The Honeywood Settlement* was in the AJ from May to October 1930 (reprints 1930 and 1944) and *Jago vs Swinnerton and Toomer* was serialized, again in the AJ, from January to March 1930, but reprinted only in 1931. Apart from the last, which was presented in the form of a law report on an arbitration case, these were probably the first English novels of recent times to be presented in the form of *the documents in the case*.

As is fairly widely known, all three treat of disputes between architects, builders and clients, in elaborate and embarrassing detail. In consequence, they have a secure place in the 'how not to' of English architectural teaching, and have formed the basis of mock-arbitrations, etc. However, they begin now to have the air of dealing with a world, of design, of technique, and of architect/client relationships, that no longer really exists—with the result that they must shortly embark on a second career (if it is not already a third) as historical sources, giving a picture of architecture and society as rich and as variously informative as that afforded by mediaeval building account-books.

CORRESPONDENCE

DURHAM ENDANGERED

To the Editors.

SIRS,—The article by Andor Gomme in your June number, entitled 'Durham Endangered,' says that the threat comes from the university. The first, splendid illustration shows the cathedral from the south-east and 'the houses in front of it (for whose retention the article pleads).' The university does not own most of the houses shown. But to my certain knowledge not one of those belonging to the university, and to the best of my belief not one of the others, is under any

1, the entrance hall of the existing Royal College of Physicians.

kind of threat immediate or remote. How can I help supposing that this caption is a deliberate untruth, aimed at damaging the reputation of the university?

There are two illustrations (nos. 11 and 18) of the house in North Bailey from which I write this letter. If the writer besides, photographing the house, had been courteous enough to ring the bell and ask to see me or any other officer of the Durham Colleges we could have pointed out that this house and its neighbour, in the middle of the west side of North Bailey—the area of which he says 'the whole of it is to go'—were reconditioned a few years ago, one of them being gutted and joined to the other internally, without any alteration to the doors, windows or roof facing the street. Bar accidents, the building is now safe for a century or so. The writer may conceivably have been misled by the fact that this building is inside the area, shaded in his map, for which the university has had a complete survey made, to see which houses can and which cannot be preserved. Not all of them can. One house on an important site in North Bailey has its front wall so far out of true that two successive architects, asked to recondition the house, have warned us that if gutted it will fall down. Is that the fault of the university, or of those who built it centuries ago?

I cannot pursue the writer through all his misstatements. I have said that he may have been misled, but he made no attempt, so far as I can ascertain, to ask any single question from anyone connected with the university. He says that Dun Cow Lane (illustration no. 27) is all to go. Quite untrue. He says that the domestic buildings are to be replaced by largish blocks of college buildings. Quite untrue. It has been agreed that where demolition is necessary the new buildings shall maintain the simple, varied, domestic character of the adjoining houses. Experts are still not agreed whether the new houses shall be frankly modern in appearance or not.

For the north side of Owengate, whose reconstruction is the most urgent problem, we have consulted not only the Planning Authority but also the Royal Fine Art Commission and the Society for the Protection of Ancient Buildings. All parties are well aware of the need to preserve the 'dramatic approach' to Palace Green. Incidentally, the Castle Keep (illustrations nos. 4 and 24) was built by the university in the middle of the nineteenth century, replacing a ruinous Norman building.

The one certain way of endangering Durham would be to yield to the sentimentalists who want everything left exactly as it is. That would mean the progressive decay and collapse of outworn buildings.

May I end by referring to the real record of the university's care for its splendid heritage of old buildings, small as well as great? Between the two World Wars the university, then very small and almost desperately poor, by efforts sustained over many years raised the huge sums needed to save the Castle from imminent danger of collapse. That task was successfully completed in 1939. During the war no rebuilding was possible. Since 1945, simultaneously with the programme of new building outside the peninsula, which has trebled the size of the university, we have restored, on Palace Green, the Norman Chapel, Bishop Cosin's Library and the Old Library block; in North Bailey, the so-called Rectory of Hatfield College, the Assembly Rooms Theatre (internally—the ugly nineteenth-century front must wait a while), and this house (No. 38) and its neighbour. Two houses in North Bailey have collapsed. One has been rebuilt, by one architect. The other is about to be rebuilt, by a different architect. In Saddler Street (illustrations nos. 14 and 19) we have recently bought three dilapidated houses, unpretentious but characteristic, have gutted them and brought them back into use. One of them is the house nearest to the camera in illustration no. 14. In that house, and that house alone, we ventured to alter the fenestration, with the result that your caption describes it as 'vernacular street architecture at its best.'

Your article mentions the 'handful of people' who defeated the Kepier power-station plan here in 1946, and compares it to the defeat of Goliath by David. Of those who led that handful, I am the last survivor in Durham. As Warden I bear the chief responsibility for the building programmes of the university in Durham, both those completed during the last twenty years and those now current. Has David really turned into Goliath?

Yours, etc.,

JAMES DUFF.

Durham Colleges Office,
38 North Bailey,
Durham.

Andor Gomme writes—

Sir James Duff is right about the inaccurate caption, which was not my error but was due to an editorial misunderstanding and was certainly not deliberate. Fortunately, however, those who read the article closely will have been able to make the appropriate correction themselves; for the article drew attention to the good work of St. Chad's (only to some extent autonomous) in restoring those very houses.

Responsibility for other inaccuracies must lie partly with the university, which has all along made it so difficult for interested people to find out what is really going on, and seems unable to make any coherent statement of its own intentions, which seem to change so often and so unpredictably. It is excellent to hear that No. 38, North Bailey and Dun Cow Lane (or part of it?) are to be spared, and that the rest (some of the rest?) is not to be replaced by largish blocks. Certainly earlier plans contained no such reservations. And what is proposed now? It is hardly possible to find one positive indication of the university's intentions in the whole of Sir James's letter: what a pity that he concentrates so much on accusations of untruth and yet makes statements that can, after all, be only described as equivocal! Will he not now publish the present plans so that there may be no doubt of what is intended? Otherwise there may well be others beside myself who will suspect that the situation remains very much as described in my article, so little does Sir James's ingenious letter do to remove fears or create confidence.

As for what detailed points can be drawn out from Sir James, how good to know 'all parties are well aware of the need to preserve the dramatic approach to Palace Green': how even better if this awareness could be brought into action to preserve those features which are essential to this dramatic approach but which are just those that the university wants to do away with. I don't think anyone would like everything left exactly as it is: but it is most urgent that the irreplaceable things should not be cast away; and to keep a single house in North Bailey (all that the university has so far admitted to there) is a poor way of paying respect to what it has inherited.

We are all of course grateful that some buildings have been rehabilitated: our complaint is that so many others—essential to the whole architectural complex—have been neglected and are now threatened with demolition. I don't think that it can really be claimed that the university was very small and almost desperately poor between the wars. Durham University was, and is, Durham and Newcastle, and neither particularly small nor notably poor. This may seem a minor point, but Sir James is so punctilious about St. Chad's that he should be accurate here also. (Incidentally, if he had looked closely at the caption 'to illustration no. 14,' he would have seen that it wouldn't really make sense if it referred to that photograph alone: it is obviously concerned with the whole long sequence of buildings in the Bailey and Saddler Street).

But it is Sir James's last paragraph which contains his most remarkable deviations. We cannot here go into the details of the case: I shall leave it to those who know the history of the Kepier project, or are prepared to look through the files, to consider just what part Sir James and the University played in the engagement which ended in the defeat of the scheme. In the present situation there is some piquancy in Sir James's drawing attention to it.

1960 SERIES

To the Editors.

SIRS,—I was much encouraged by your very sage comments on the trying symposia we have been enduring for the past six months. Mr. Nairn's letter in your June issue was also admirable. Both tended to confirm my own feeling that what architectural theory and practice really need is a very long rest from Dr. Banham.

Yours, etc.,

HERBERT HALSE.

Hemel Hempstead.

GREEN BELTS

To the Editors.

SIRS,—Like Ian Nairn, I am sure that Miss MacInnes is right fundamentally in her criticisms of the difficulties raised for a small and remote country town by the allocation of all agricultural land to the green belt. It is certainly a case of appearance without reality for it restricts and hampers the proper evolution and redevelopment of the town. At the same time, it likewise hampers the development of light industries in the countryside and thus adds its support to the general decline of rural communities. Neither the Ulthwatt nor the Scott reports have ever been implemented properly, with the obvious result that rural depopulation progresses apace. One has only to compare the population problems of rural Eire or of the Scottish Highlands to see that the policy of introducing light industries affords the only possible way of preventing death through depopulation. It is too often forgotten that the townsman's playground is the countryman's workshop.

At the same time it would be a retrograde step to approach this problem by a mere attack upon existing green-belt policy. Such an attitude would savour too much of the government suggestion that the present inflation in urban land-values can be met by releasing more land for building. In fact the two issues, that of the countryside and that of land-values, are really two facets of one larger problem. It is comparatively easy to design schemes for redevelopment both urban and rural. But it is almost impossible to put them into practice without some sort of socialized land control. For example, Wren's plan for rebuilding London after the Great Fire was shattered by the opposition of the land-owners, and something of the same kind has affected the redevelopment of the blitzed areas in our own day. At the present time, inflation in land-values is only possible because a conception of private ownership in land-monopoly has been but slightly modified by planning legislation. It is a curious feature of the scene that, whilst in strict English law, there is no such thing as the absolute private ownership of land and the conception is regarded as infringing the final ownership by the Crown, yet for practical ends this wholly ficticious conception of private land-ownership is allowed to dominate the situation.

Both Miss MacInnes and Mr. Nairn call in effect for some all-over land planning. I would like to go further and suggest that, without some form of common ownership in land, all planning, whether urban or rural, is likely to prove abortive or at the least to be badly maimed. The present government obviously shirks the issue despite the many pleas that the unearned increment of land-value produced by general development should be socialized and not belong to the individual speculator. The Labour government of 1945 avoided the land issue in its fundamental form and contented itself with certain planning legislation. As long ago as 1946, in his *City Development*, Lewis Mumford demanded that land-values should be pegged as a requisite of any satisfactory development plan. This has not been done and situations have resulted which are deplored equally by Miss MacInnes on the one hand and the town-planner concerned with vast urban conurbations on the other.

Faced with these results, we have now a narrow choice of free trade in the releasing of more land for building or of a social control which shall presuppose some form of social ownership in land. It is worth recalling that the first policy would go far towards swelling the octopus of which Clough Williams-Ellis wrote as long ago as 1928, or which may be seen in embryo in 'the great wen' against which Cobbett protested. A great deal has been said in praise of town planning within the Soviet Union by those who

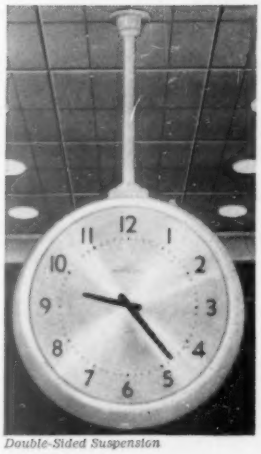
Mayfair/Farnham

Malvern/Fern

Melton/Fleet

A CERTAIN STYLE

. . . distinguishes E.C.S. Wall Clocks. Designed to blend with modern building technique and decoration, their elegant symmetry of line adds an air of grace wherever they appear. All the models shown are available in a number of sizes and can be supplied for operation direct from normal A.C. mains or from the E.C.S. Master Clock. E.C.S. wall clocks have been approved by the Council of Industrial Design and are included in 'Design Index'—a further indication of the high standard of design and dependability maintained by E.C.S.



Double-Sided Suspension

Medway/Fife

Monarch/Flint

'M' Series (e.g. Mayfair) Surface Mounted
'F' Series (e.g. Farnham) insertion type

Mostyn/Filey

Fulmar

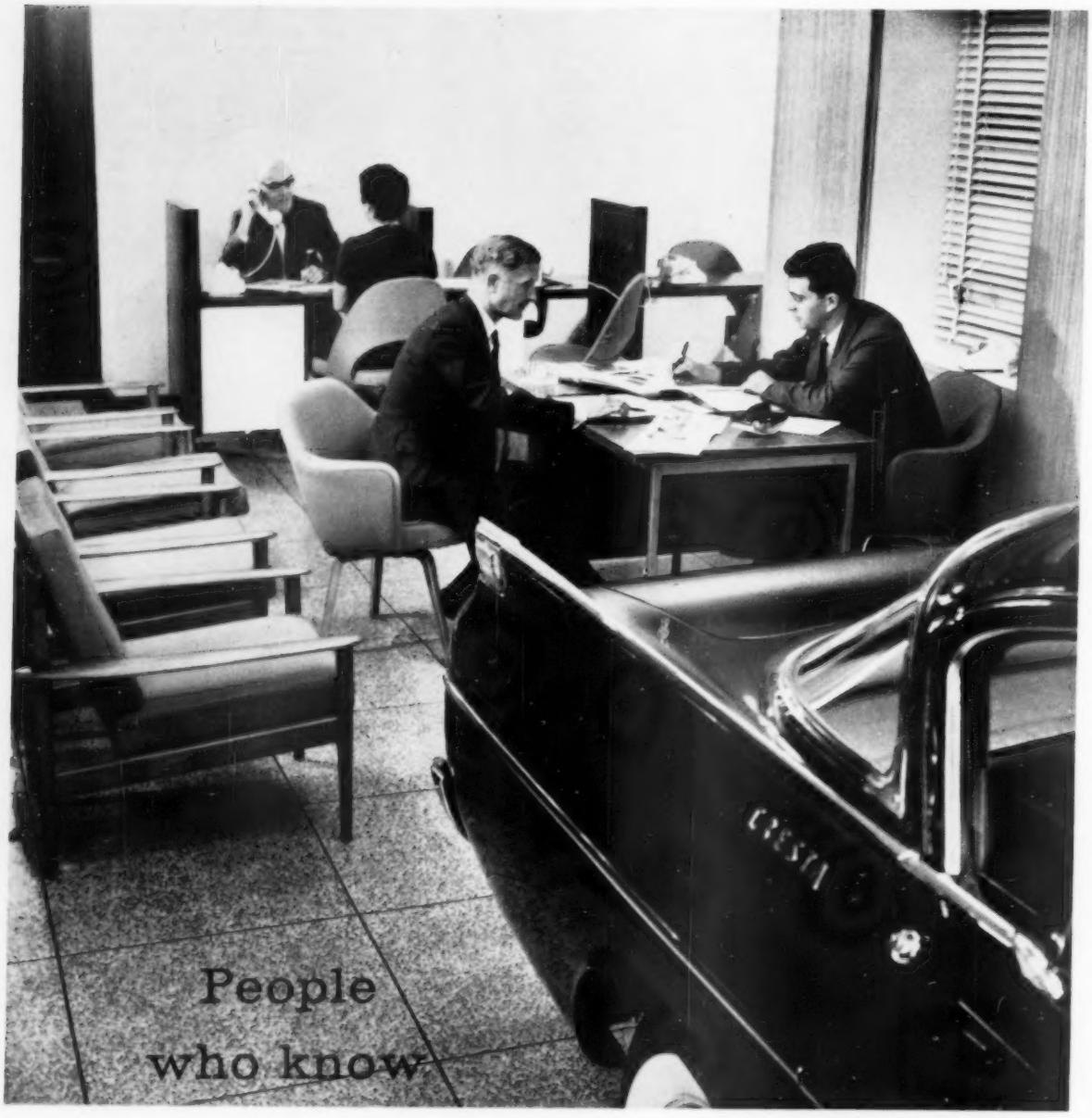
The two latest additions to this distinguished range. Gilt anodised cases with raised gilt batons and tapered hands.

Falcon

ENGLISH CLOCK SYSTEMS

179-185 GREAT PORTLAND STREET LONDON, W.1.
Branch Offices and Showrooms in Birmingham Manchester Glasgow & Belfast

A branch of the Clock and Watch Division of SMITHS S. Smith & Sons (England) Ltd.



Architects: Howard, Fairbairn and Partners

are talking about

...the brisk, functional look of Vauxhall Overseas new London showroom...the advanced design of Martins Bank at Shirley, Birmingham...the modern efficiency of the Queen Magazine's editorial offices...the World Headquarters of Castrol Oil Group...and other large interior schemes too numerous to mention. For a fully illustrated brochure, write for "More Interiors" by

HEAL'S
CONTRACTS LIMITED

196 Tottenham Court Road, London W1 Museum 1666

are not of necessity Communist in outlook. It is worth recalling that Soviet achievement has only been possible by the use of land which is already in common ownership.

Yours, etc.,

F. H. AMPHLETT MICKLEWRIGHT.

London, S.E.25.

BOOK REVIEWS

INSTINCTIVE REACTIONS

EXPERIENCING ARCHITECTURE. *By Steen Eiler Rasmussen. Chapman & Hall.* 30*s.*

We have long held Mr. Rasmussen in affectionate esteem as a sympathetic though acute architectural critic, viewing our chaotic English scene through his kindly Danish eyes, judging us with the benefit of every doubt.

In this, his latest generously illustrated book, *Experiencing Architecture*, based on his London lectures of two years ago (and how deft to have found an apt title at the tail of so long a procession of books of similar aim)—he surveys the world at large, though capriciously — Scandinavia, Italy, China, Japan and the USA providing most of his examples; Britain almost none beyond our Hertfordshire schools.

The only British architect mentioned is Hope-Bagenal. in connection with acoustics (to which the author attaches unusual importance)—the Masters of the Italian Renaissance, the modern Scandinavians, Frank Lloyd Wright and Le Corbusier providing most of the evidence for Mr. Rasmussen's case. And what *is* his case? It is perhaps fairly summarized by himself thus:

'Architecture means shapes formed around man, formed to be lived in, not merely to be seen from the outside.

'The architect is a sort of theatrical producer, the man who plans the setting for our lives. Innumerable circumstances are dependent on the way he arranges this setting for us. When his intentions succeed, he is like the perfect host who provides every comfort for his guests so that living with him is a happy experience. But his producer job is difficult for several reasons. First of all, the actors are quite ordinary people. He must be aware of their natural way of acting; otherwise the whole thing will be a fiasco. That which may be quite right and natural in one cultural environment can easily be wrong in another; what is fitting and proper in one generation becomes ridiculous in the next when people have acquired new tastes and habits.'

Though he has much to say on aesthetics, there are those who will dispute certain of his highly subjective pronouncements and doubt the validity of some of his musical analogies.

Le Corbusier's devotion to the Golden Section and *Le Modulor* is considered appreciatively and at length, but where Mr. Rasmussen is perhaps most instructive is in his chapters on daylight and colour, though—as elsewhere—the implication is that for the successful solution of aesthetic problems, rules are no substitute for inspiration.

'Color can be a powerful means of expression for the architect who has something to say. To one it may mean that the ceiling should be dark and heavy, to another that it should be light and airy.'

He is so alertly aware of a sensitive observer's instinctive reactions to interior spaces of varying sizes and proportions that it is surprising to find no reference to Geoffrey Scott's *Architecture of Humanism* where, if I remember rightly, he made many of us fully conscious of this powerful architectural effect for the first time.

Certainly I recall Scott's gestures, as eloquent as his words, as when exploring the churches and palaces of Tuscany together, he would suddenly stand on tiptoe or crouch or throw out his arms in almost automatic response to his spatial setting. It pleases me to picture Mr. Rasmussen reacting to similar spatial stimuli with like uninhibited bodily postures. I feel confident that he does or would like to.

Clough Williams-Ellis

LETTERING TO LIFE

LETTERING ON BUILDINGS. *By Nicolete Gray. The Architectural Press.* 25*s.*

This is not altogether an easy book to read. Mrs Gray's thought is compressed, its expression spare, and since the text is, in the main, a commentary upon the 269 illustrations printed at the end of the book, one is forthwith engaged in those laborious five finger exercises of keeping as many places marked at the same time as possible. The book could not, in fact, have been presented in any very different way, but the fact remains that it is taxing to follow with concentration for any length of time.

It seems worth saying this lest any potential reader be frightened off an ultimately rewarding experience. In this study Mrs. Gray has broken quite new ground. She makes no claim to comprehensiveness, but for anyone concerned with letter forms she has provided an imagination-stretching exercise. Whether her cool, academic tone will attract those without an existing interest in the subject, I am not sure—architects, by and large, have singularly little feeling for lettering—but this in itself is an indication of how greatly such a study has been needed. 'My hope for this book,' Mrs. Gray writes, 'is that it may help to bring lettering back into the full life of the modern movement.'

She starts off with a healthy side swipe at Establishment Trajan for its claims to exclusive orthodoxy, claims which have led, as often as not, only to insipidity and timidity. She rejects, quite properly, the purely typographical letter as incapable of providing a suitable foil to architecture. By page 20 she has reached the proposition that is central to the whole book: 'With architectural lettering the typographical criteria must be reversed; the dominant factor is design not legibility.' The author's rejection of doctrinaire utilitarianism has been known to us for more than twenty years so it is no surprise to find her putting in a plea for 'patterns which are clever or amusing in themselves, and in relation to the buildings to which they are attached . . . even if they are not read at all.'

Now this, at least in terms of townscape, is much less outrageous than it sounds. Abstract signs, symbols, patterns, signals may not only be pleasing to the eye, but are often likely to function better than our pathetic attempts to spell out logical thought in needless detail (like those Ministry of Transport signs). The trouble is that, away from classical norms, personal taste becomes the arbiter and, until we are all visually literate, personal romanticism can lead to fairly horrid results. Even the sensitive student of these things who seeks above all richness of character contrasts, reverberations of far-off fashions, the whiff of ancient enthusiasms, is apt to end up a collector of quirks and oddities. Mrs. Gray, indeed, has one or two in her collection for which I am unable to share her enthusiasm.

It would be unfair, however, to imply to her catholicism of taste any kind of recklenessness. Her observation is acute, her scholarship—in so far as I am fitted to judge—impeccable, her ability to pin down the intrinsic characteristics and 'flavour' of letters often exact. The first part of the book comprises a historical survey of the traditional letter forms that we have inherited; the second part considers these in relation to their fitness and purpose, their material, the new possibilities presented by illumination and so on. The illustrations range from Burgos to Dublin, Bath to Isfahan, Lindisfarne to Van Doesburg, with not a few surprises like the peach of a bathing hut at Menton.

Lettering on Buildings is not a handbook for a quick crib. There are no rules of thumb here for the chairman of the Planning Committee, or the sign-writer, or indeed the architect. On many of the wider aspects of the subject, from the relationship between different letter forms used in conjunction to the daytime effect of illuminated skyline signs (think of Copenhagen or Mr. Cotton's Piccadilly Circus), the author is silent. On the other hand, if all architects and designers could be persuaded to make it a regular bedside book, costive imaginations would sooner or later begin to work again. In place of the boring and trashy signposting of our environment that we have come to take for granted, we would begin to become aware of a little more robustness, elegance, diversity and wit around us.

Michael Middleton

ROMANO MANTOVANO

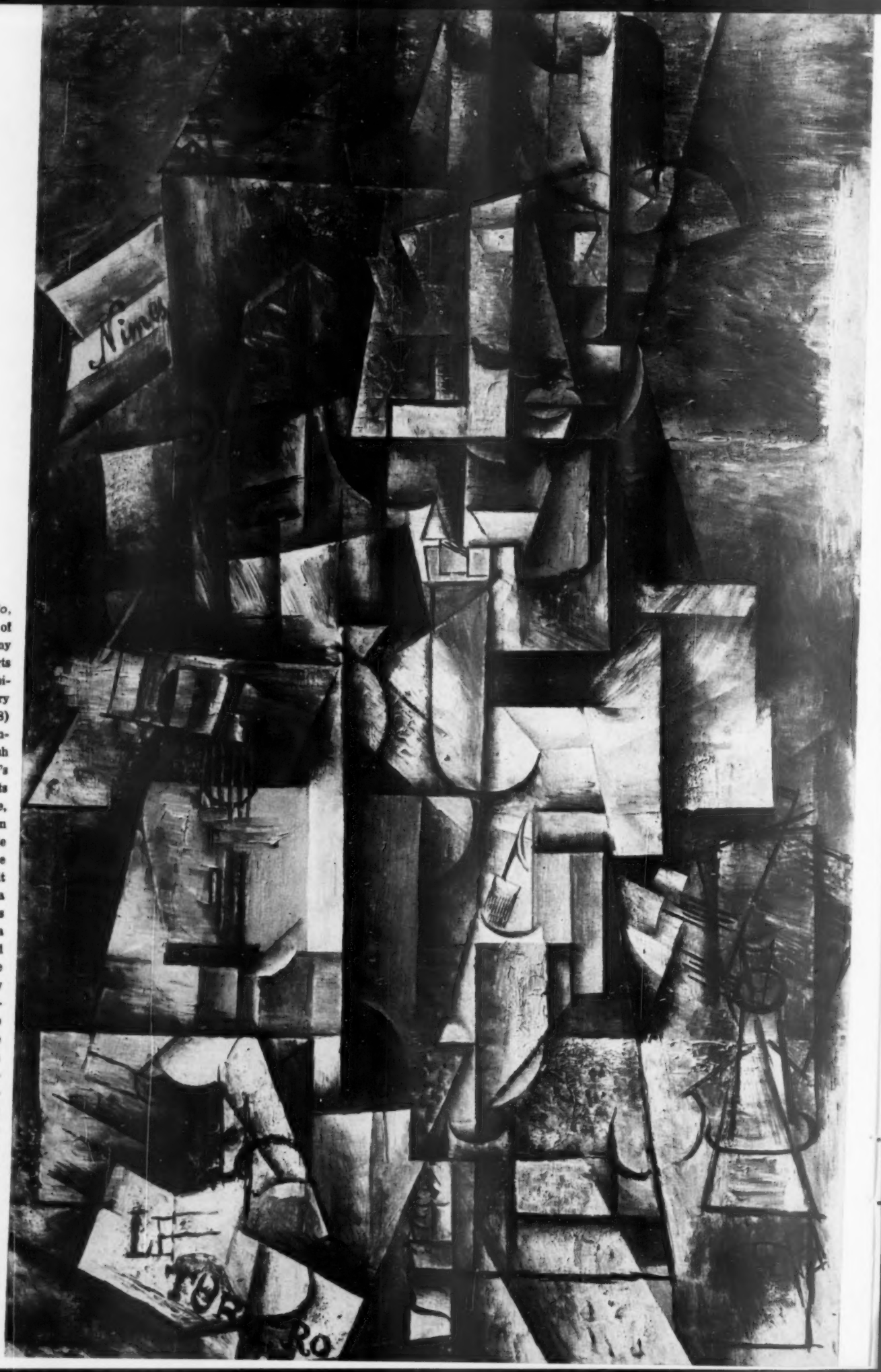
GIULIO ROMANO. *By Frederick Hartt. Yale University Press.* §25.00.

'I confess,' said Father Lavenham to his colleagues from the historians 'conference on the outing to the Palazzo del Te, 'that all this Renaissance paganism is very antipathetic to me. I have neither an aesthetic inclination towards it nor a Warburgian interest in the development of myth. . . . If I am forced to choose a pagan spirit, give me that of the Gracchi rather than of the Gonzagas. But then I'm very English.' Father Lavenham had his own personal reasons for the last remark. Yet it is true that in recent times the Anglo-Saxon attitude towards Giulio Romano, at least as a painter, has not been sympathetic or even respectful; Aldous Huxley, visiting the Palazzo del Te in the 'twenties, regretted that 'the stupid vulgarity of Giulio Romano was permitted to sprawl over its walls in a series of deplorable frescoes.'

Earlier Englishmen took a different view. Sir Joshua Reynolds, as Professor Hartt reminds us in this book, thought that Giulio Romano possessed 'the true poetical genius of painting, perhaps in a higher degree than any other painter whatever.' And to-day he is coming into his own again, even as a painter—a reinstatement which is the less surprising when one considers, with Professor Hartt, that 'the mechanized horror of the Sala dei Giganti has much in common with Cinerama' and that his classicism should 'at so many points, particularly in the more personal fantasy world of his drawings, . . . suggest that of Picasso.' As for his architecture, those undisciplined pilasters, that wilful rustication and those outrageous triglyphs have made the Palazzo del Te, at least, required seeing ever since Dr. Pevsner first spotlighted them for English readers in *The Mint* back in the mid 'forties.

Like other substantial works of art history published recently in the United States, Professor Hartt's book comes in two volumes, the first of text and the second of illustrations (542 of them). As more and more often in such works, the form that the text takes might not unfairly be described as a glorified catalogue raisonné. This form has the advantage of facilitating a complete presentation of the material, but is apt to discourage the non-specialist reader. Here, however, if the latter will bring himself to take the plunge he will soon make a pleasant discovery: Professor Hartt writes not as most art historians write, but very well indeed. His style is precise without being pedantic, admitting on occasion the expressive colloquialism but quite free from that jargon which, since it gives pain to everyone else, must be presumed to please examiners for the Ph.D. (For quick proof of his excellence in architectural description, turn to the account of the great loggia of the Palazzo del Te on page 98.) Certainly anyone planning to visit or re-visit Mantua should consult Professor Hartt. Besides supplying him with all the information he could want about the history of Giulio's chief works there and elsewhere, he will save him from false assumptions about the artist's own house and the Cortile della Cavallerizza (of which the elevations that one normally sees, from the windows of the ducal palace, are not Giulio's at all, it turns out, but Bertani's); he will bring home to him the greatness of the loss that Giulio's façades, and many other Mantuan façades as well, sustained when their original colours faded or were painted over; he will direct his steps in the always fascinating pursuit of minor works. All this and more on the strictly architectural side, to which no one, in Mantua, would wish to limit himself. To do so, indeed, is hardly possible. Mannerist architecture, as Professor Panofsky remarked many years ago (though without citing Giulio Romano, curiously enough), 'represented a rebellion of the non-architects.' In Giulio's work the architecture and the non-architecture, the painted decorations, are so much of a piece throughout that even iconographic subtleties in the latter may have a bearing upon the former. Here, too—perhaps here especially—the most Anglo-Saxon and least Warburgian of readers will find Professor Hartt a lucid and persuasive guide.

Marcus Whiffen



Picasso's *Aficionado*, a high Cubist work of 1912, is one of the many pictures in the Arts Council's great exhibition at the Tate Gallery (until September 18) that testify to the Spanish elements and Spanish interests in Picasso's personality. But, with its controlled shallow space, its sense of having been assembled from discrete and almost tangible planes and blocks, it represents Picasso at a time when his art was about to trigger off a revolution in vision and design that was to be world-wide, not merely Spanish, in its consequences. Among those consequences must be numbered some part in the creation of the Modern Movement in architecture—a part that is discussed, among all the other parts, in Reyner Banham's recently published book, *Theory and Design in the First Machine Age*, which is the subject of the article opposite, by the distinguished American architect, Philip Johnson.

Philip Johnson

WHERE ARE WE AT?

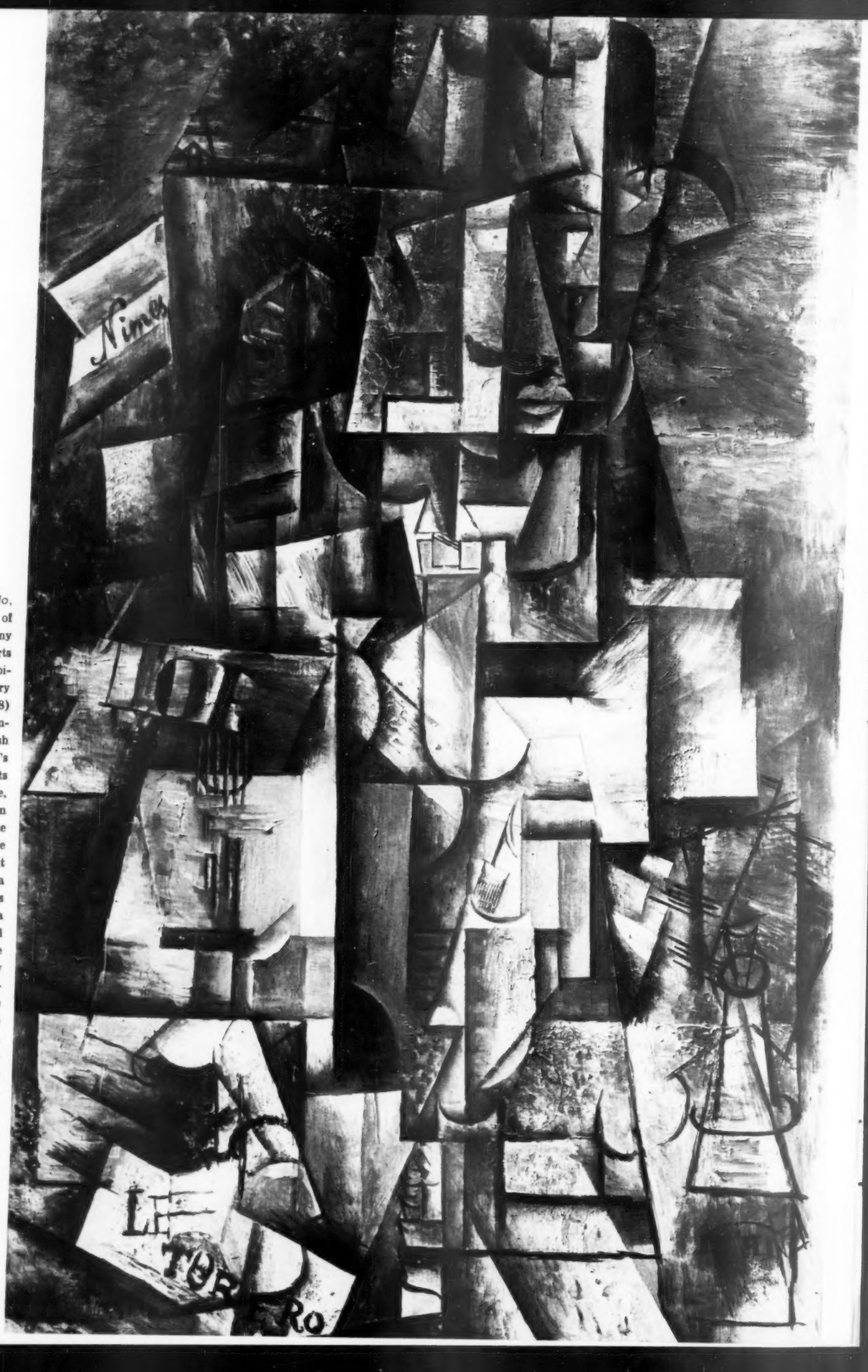
For an American addendum to the soul-searching about 'Whither Away' which THE ARCHITECTURAL REVIEW goes in for every month, I may not be the best one for the REVIEW to hire. There are Scully and Hitchcock and Drexler, McQuade and Jordy to pick from, but I do have one disadvantage-advantage, and that is that unlike the others I do practise—with much difficulty—architecture. I am outside the writing-historical club and I can be as arbitrary as I want; be willing to be labelled—and mislabelled—any way they, the club, want. Although it is never pleasant for a practical person to be pejoratively pigeonholed (one feels caged into a small sub-category that robs one of the self-glorificatory freedom that artists like to boast of), it will nevertheless be fun to be a sub-species for such extremely astute and intellectual categorizers as the English intellectuals.

One of the major keys to any discussion 'Where Are We At?' is Banham's important book *Theory and Design in the First Machine Age**. It is a wonderful and perverse book. I can't follow his *parti pris:* 'What distinguishes modern architecture is surely a new sense of space and the machine aesthetic'. As one minor architect (maybe not even 'modern') I have no new sense of space nor am I encumbered with a machine aesthetic.

Nor can I go along with his title, and I quickly propose another one: 'Architectural Theories of the First Half Century.' It is not that I would have historiographers without a point of view (I like Scully's introduction of Greek topography in his book on Wright), but I find it hard to follow the author when he takes one of the more peculiar beliefs of the twenties, the faith that we live in a Machine Age (note the capitals), and makes it into his criterion for the validity of an architectural style.

Architecture, one would think, has its own validity. It needs no reference to any other discipline to make it 'viable' or to 'justify' its value. We might even question whether words like value or morals are applicable to an architectural style. The International Style, for example, needs no one to say it was good or it was bad. Greek and Gothic styles were loved and reviled throughout subsequent ages and neither opinion

* Reyner Banham, *Theory and Design in the First Machine Age*. London, The Architectural Press, 1960. Price, 45s.



Picasso's *Aficionado*, a high Cubist work of 1912, is one of the many pictures in the Arts Council's great exhibition at the Tate Gallery (until September 18) that testify to the Spanish elements and Spanish interests in Picasso's personality. But, with its controlled shallow space, its sense of having been assembled from discrete and almost tangible planes and blocks, it represents Picasso at a time when his art was about to trigger off a revolution in vision and design that was to be world-wide, not merely Spanish, in its consequences. Among those consequences must be numbered some part in the creation of the Modern Movement in architecture—a part that is discussed, among all the other parts, in Reyner Banham's recently published book, *Theory and Design in the First Machine Age*, which is the subject of the article opposite, by the distinguished American architect, Philip Johnson.

Philip Johnson

WHERE ARE WE AT?

For an American addendum to the soul-searching about 'Whither Away' which THE ARCHITECTURAL REVIEW goes in for every month, I may not be the best one for the REVIEW to hire. There are Scully and Hitchcock and Drexler, McQuade and Jordy to pick from, but I do have one disadvantage-advantage, and that is that unlike the others I do practise—with much difficulty—architecture. I am outside the writing-historical club and I can be as arbitrary as I want; be willing to be labelled—and mislabelled—any way they, the club, want. Although it is never pleasant for a practical person to be pejoratively pigeonholed (one feels caged into a small sub-category that robs one of the self-glorificatory freedom that artists like to boast of), it will nevertheless be fun to be a sub-species for such extremely astute and intellectual categorizers as the English intellectuals.

One of the major keys to any discussion 'Where Are We At?' is Banham's important book *Theory and Design in the First Machine Age**. It is a wonderful and perverse book. I can't follow his *parti pris:* 'What distinguishes modern architecture is surely a new sense of space and the machine aesthetic'. As one minor architect (maybe not even 'modern') I have no new sense of space nor am I encumbered with a machine aesthetic.

Nor can I go along with his title, and I quickly propose another one: 'Architectural Theories of the First Half Century.' It is not that I would have historiographers without a point of view (I like Scully's introduction of Greek topography in his book on Wright), but I find it hard to follow the author when he takes one of the more peculiar beliefs of the twenties, the faith that we live in a Machine Age (note the capitals), and makes it into his criterion for the validity of an architectural style.

Architecture, one would think, has its own validity. It needs no reference to any other discipline to make it 'viable' or to 'justify' its value. We might even question whether words like value or morals are applicable to an architectural style. The International Style, for example, needs no one to say it was good or it was bad. Greek and Gothic styles were loved and reviled throughout subsequent ages and neither opinion

* Reyner Banham, *Theory and Design in the First Machine Age*. London, The Architectural Press, 1960. Price, 45s.

affected the architecture itself, but were comments rather on the state of mind of the lover or the reviler. The International Style is its own justification. We can dislike it, which most of us may to-day, but we are obviously much too close to have any interesting views on its future influence or its position in the history books.

For the sake of the argument let us admit that we do live in a machine age. We can hardly call to question an architectural style that evolved in that age for not expressing it. The International Style 'expressed its age' merely by the fact of being prevalent at that time.

As for the discussion in the book of the fine distinction between the first machine age, which is apparently on the way out, and the second, which is coming in, it is not an interesting dichotomy architecturally, and has only marginal interest as part of an otherwise fine history book.

Once the reader has passed through the machine-drenched prose of the introduction, however, he will find a treat awaiting him. I know of no author but Dashiell Hammett who can keep me more fascinated page by page. Reading as a student who had arrived in 1930 on the European scene, I keep having the feeling 'Oh, yes, I did believe that then,' or 'Now I understand where I derived that idea from.' For example, the preposterous idea that Gothic ribbing carried inert panelling and that therefore it was morally 'good' to separate structure from infill, took up my whole horizon as a young designer. Or when I remember our worship at the shrine of Plato's Philebus because he wrote there of the beauty of the pure mathematical shapes and their solids. I blush at the absoluteness of our beliefs, which Banham makes such intelligent fun of. Again, the keen analysis of Guadet and Choisy as ancestors of our planning and our structural functionalism is a revelation. I did not know before how much that I take for granted came from the prejudices and whims of men so far before our day.

The author's chief interest, however, it becomes clear, is Futurism, and the lyricism about Marinetti is far different from his wry humour about, for instance, Le Corbusier's theories. From Marinetti to Buckminster Fuller represents a line of development outside of what THE ARCHITECTURAL REVIEW would call (in capitals) the Main Stream, a line of technology, a sole god, an autophagous design animal, the story of which in Banham's prose has the exhilaration of a Coney Island roller-coaster. The ride, however, leaves me cold because, as Banham admits, Futurism was more important as ideology than as form.

The Main Stream is more interesting to me: the English influence on the *Werkbund* has never been better brought out, Muthesius better evaluated. (As is often the case in this book, the non-architect talkers: Muthesius, Marinetti and so forth, are more stimulating than the plodding practitioners.) Parenthetically, it is amusing to read an historian of the ideas *about* architecture (Banham) at the same time as an historian of the *forms of* architecture (Hitchcock). They both stimulate; history is after all the story of what goes into the mentality of all of us designers to-day. Both the Banham book and the Hitchcock Pelican volume deal with the architecture of the immediate past; both are brilliant, but since they seem almost not to overlap one should perhaps read one in alternate chapters with the other. If one misses in Hitchcock the broad wit and generalities that Banham serves up, one is grateful nevertheless for the specific story of forms, since forms in design beget more forms, whereas ideas barely have influence on them.

New *aperçus* appear throughout Banham's book: Berlage appears fresh to me, for example. It has always been clear that he was influential (especially to Mies's development) but his work when visited seemed relatively modest, even uninteresting. But with Banham's outline placing him in his Zurich lecture as the bridge between Wright and the European modern movement, all becomes clear.

But even Banham cannot tell us what happened at the Bauhaus. All Bauhaus members deny de Stijl influence in the 1923 revolution against Itten, and yet our eyes tell us otherwise. There is no doubt of the personal battle between van Doesburg and the Bauhaus in Dessau which would cloud the eyes of both sides involved. And there is also no doubt of the Lissitzky influence (which all since admit); but Lissitzky was not de Stijl. Also in Berlin in 1922 there was such a confluence of interweaving streams that perhaps it really was a spontaneous combustion. But can one imagine the interlocking cubes of the Meisterhaus at Dessau or the Bauhaus itself without a direct line from de Stijl?

Thanks to Banham we get a 60's view of the whole German twenties. Mies and Hilberseimer turn out to have been the most perspicacious of the practising architects, Hilberseimer for his books and Mies for his choice of leaders at Weissenhof. Who, with 20-20 hindsight to-day, would pick differently the four leading architects of that year, 1927, to give prominent space to in an international exhibition: Le Corbusier, Mies, Gropius and Oud? It is a pleasure to record that a practising architect, not a critic, was the chooser.

It is especially welcome to-day, to read a book that can be written about the twenties without being propaganda for the International Style. At the time we could not appreciate a de Klerk or a Sant'Elia (I still cannot) or Mendelsohn or even Domenicus Böhm (whom Hitchcock, but not Banham, cites). Even Scharoun and Haering were suspect, so strait was our gate. (Look up who was included in Hitchcock and Johnson's *International Style*, written in 1930-31.) But time makes perspective, and both Hitchcock and Banham can find new ways to look at those dear, dead days.

When the story of Banham's book changes to the emerging critics of the end of the twenties, the names of Giedion and Hilberseimer come up, but what of that American Barr—Johnson—Hitchcock circle that Banham refers to in articles, but not in his book. He makes fun of the propagandist historian Giedion for falling for the functionalist doctrine of the times, but does not mention that Hitchcock did not. Read his *Modern Architecture* which appeared in 1929. It was clear to the author then that the 'New Pioneers,' as he called them in his first book, were doing something radically different and confluent and it had nothing to do with functionalism or for that matter a Machine Age aesthetic. Perhaps I am being US nationalist about this point, but Hitchcock's physical distance

seems to have given him an eye for the form as being more important than the palaver. And, incidentally, the sobriquet 'International Style,' which Banham uses throughout the book, first appears itself in a title of a book by Hitchcock.

Which brings us to the end of the book: the chapter I wish Banham had left out. In it he seems to take the position that the International Style should (morally that is) have symbolized a machine age. Why? After demolishing functionalism through the book as a false propaganda term that was really never practised by the very leaders who used the word, a restricting, negative, unrealistic idea, he now attacks the leaders for not designing buildings according to another belief, that was also mere propaganda and illusion. He does not blame Mies that the Barcelona Pavilion is not functionalist, but he blames him because it is not symbolic of a machine age, or, in Banham's language, a Machine Age. Here is a stray quote from page 325: 'But because of this undoubted success [of the International Style] we are entitled to enquire, at the very highest level, whether the aims of the International Style were worth entertaining, and whether its estimate of a Machine Age was a viable one.' Who cares? The main question is, were the products of the International Style beautiful, and not even eternally beautiful, but relatively beautiful to those of us who enjoy looking at well-designed buildings.

Banham's insistence on the moral demands of the Second Machine Age ends the book. He seems to be a 'beyond architecture' believer. Pure technology will carry us onward and onward. Buckminster Fuller is quoted *in extenso* with a perfectly valid criticism of the architecture of the International Style as being concerned with design, and not with plumbing, chemistry and scientific technology. He was, and is, quite right. *All* architecture is more interested in design than in plumbing. I feel like crying (but not for quotation): Let Bucky Fuller put together the dymaxion dwellings of the people so long as we architects can design their tombs and their monuments.

But once more, whither away? The International Style is dying and THE ARCHITECTURAL REVIEW is looking for 'a new, compelling, unifying slogan.' But if we live in an age when we do not like 'compelling slogans' or styles or disciplines or even capital letters, can't we just wander around aimlessly? 'The world is so full of a number of things'; and so forth. I am free to admit that I love in my work to comment on history. The Italians like funny shapes; I don't like them, but who am I? The English like the Jaoul Houses. Paul Rudolph likes Ronchamp. More power to them. We are going through a foggy chaos. Let us enjoy the multiplicity of it all. Let the students have a different hero every year. Maybe it is good for them.

Certainly Reyner Banham's book will further the chaos by analysing away the last of the beliefs (the lovely, helpful beliefs) of the last generation.

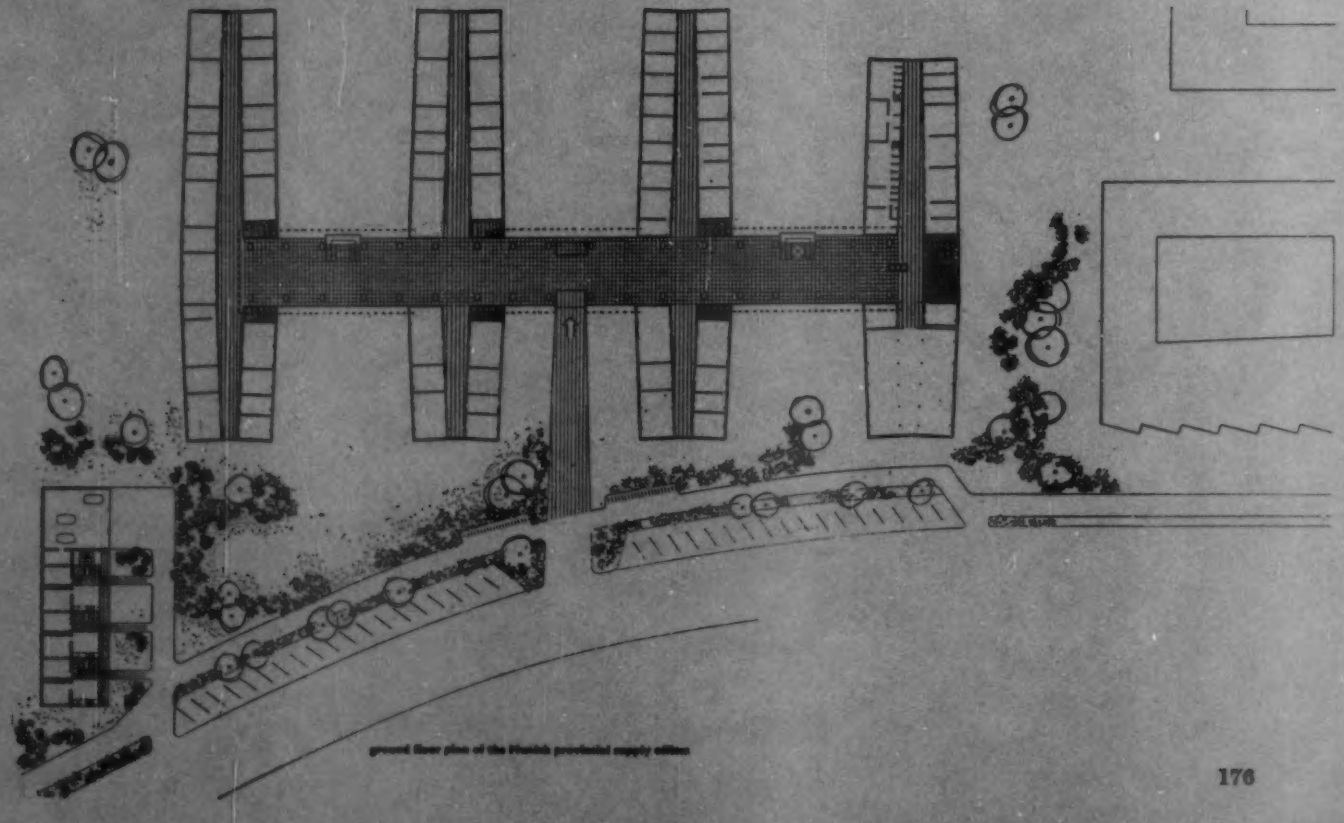
TWO GERMAN COMPETITION SCHEMES

In the German Federal Republic, architectural competitions have established themselves very firmly in the last decade as almost the mandatory method of commissioning the design of important buildings, commercial as well as public. If this has given undue power into the hands of a group of men who could almost be called 'professional assessors' it should be recognised also that some of these men have made themselves available at personal loss and inconvenience in order to ensure that the highest standards of architecture are upheld in the competition system—much of Egon Eiermann's salutary influence on post-war German architecture has been exercised in this way.

Furthermore, one should observe that this high reliance on professional choice from among a number of schemes has resulted in far fewer cautious, committee-minded solutions than might be expected. Equally rarely has a jury divided the prize in despair, and—in such cases as the Düsseldorf theatre competition—usually because it was clearly too much to be asked to choose between a number of projects of equally high quality.

However, the preponderance of the competition system has left its mark on German architecture in other ways. It has perhaps over-developed the German aptitude for ingenious and careful detailing at the expense of other aspects of design, since these qualities are easier than less well-defined ones to seize upon in committee. But, on the other hand, the need to draw up competition conditions has led to the more precise definition of briefs, while the knowledge that judgment rests largely with fellow-professionals, not with the personal tastes of a lay client, has encouraged architects to design up to fairly tough professional standards.

The two schemes reproduced on the next three pages are the sort of works by which the German competition system might, in one sense, be justified. Though neither is the work of a new and unknown designer (the Luckhardt's partnership goes back to the great days of the Berlin School), both represent a level of sheer professionalism of which any country might be proud. Both are well put together, in the sense that they are well detailed, and in the sense that much of the architectural effect comes from the structure and the detailing. But they are also well put together in the sense that they make humane and intelligent provision for the human beings who will have to use them—both buildings serve a public of one sort or another—as well as their permanent staffs of teachers or civil servants, and both contrive to handle the public in a reasonable and uncomplicated way, without fussing about 'humanism' or 'the scale of man.' It is, in the last analysis, an architecture of common sense, refined by high standards of professional competence.



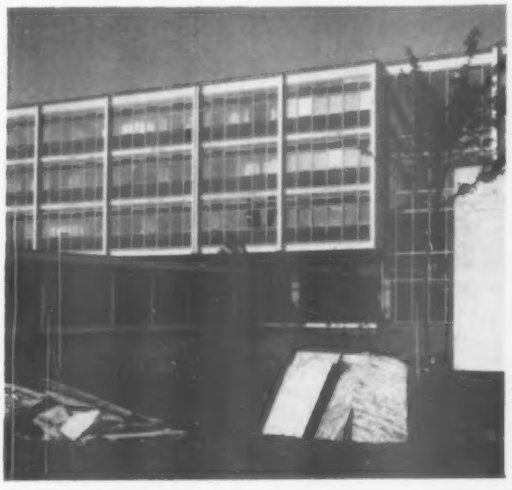
ground floor plan of the Finnish provincial supply offices

1, PROVINCIAL SUPPLY OFFICES, MUNICH

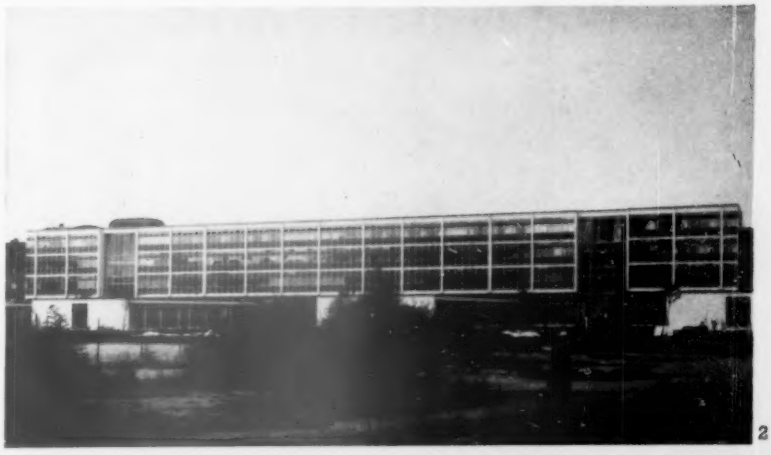
ARCHITECT, WASSILI LUCKHARDT

This office building (see plan on facing page) houses the maintenance and supply departments of the province of Bavaria and of Munich. The site is in the northern suburbs of the city. It is a type of government building that the public has to visit, and since many of the public with business in the building are pensioners, including cripples in wheeled chairs (the orthopædic supply office is one of those housed in the building), the public rooms are planned wholly on the ground floor and can be reached without stairs.

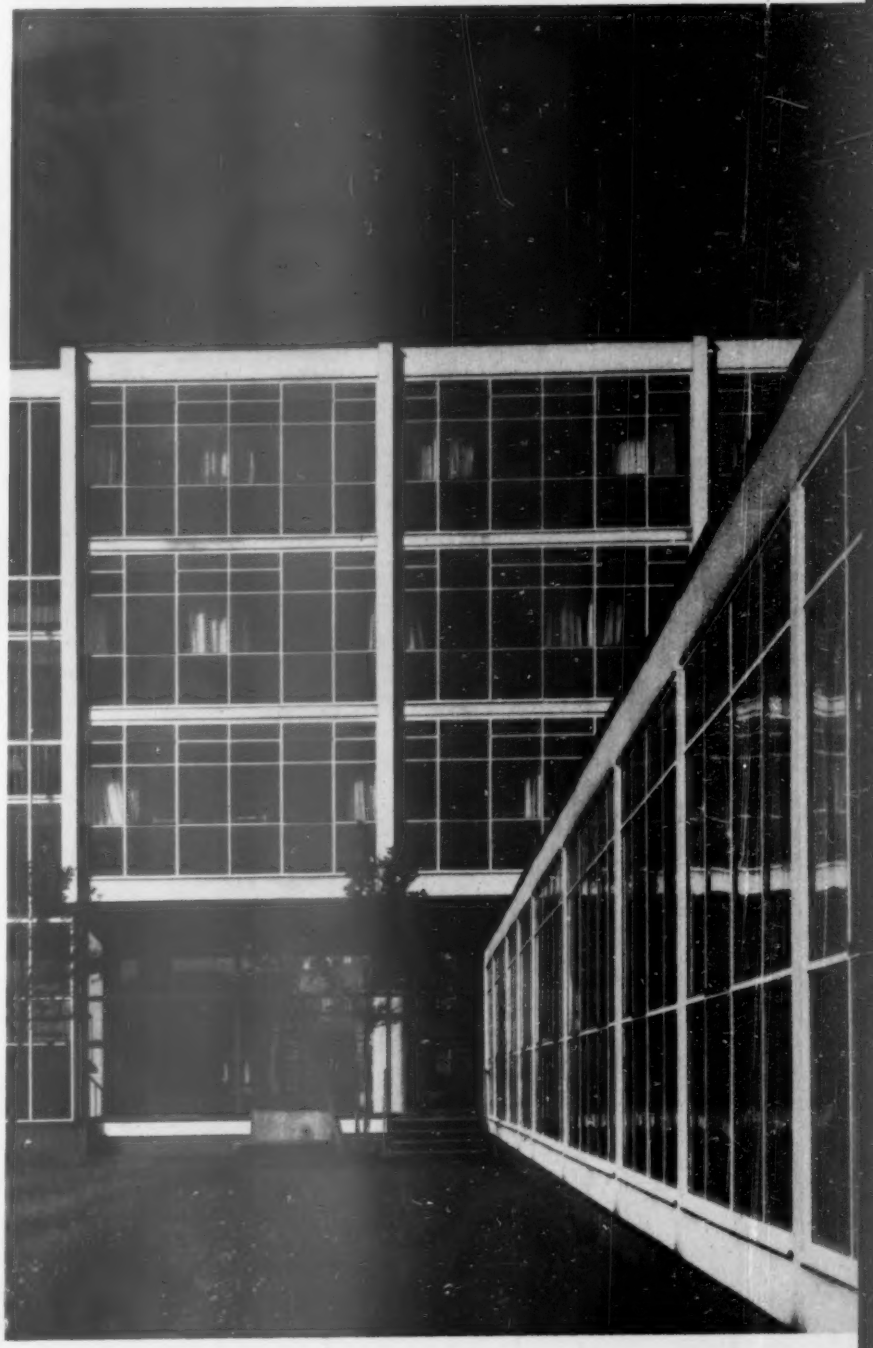
The ground floor of the main block is occupied by a large concourse, with the entrance in the middle.



1



2



3

1, the main office block seen from between two of the transverse wings.
2, from the south-west—the main approach is from the opposite side. The domed roof on the left marks the position of the conference-room.
3, inside one of the courtyards enclosed by the single-storey wings, showing the fully-glazed ground-floor concourse.

From this are reached the four single-storey transverse wings containing the public offices, each of which has a tapering central corridor in accordance with the reduced number of users at each end. The three upper floors of the main block contain the offices the public does not have to visit. They are fully glazed, giving views over the gardens in which the building is set. The narrow space between the first-floor slab and the roofs of the transverse wings is also glazed, letting clerestory lighting into the ground-floor concourse at these points. The third floor has a conference-room at one end.

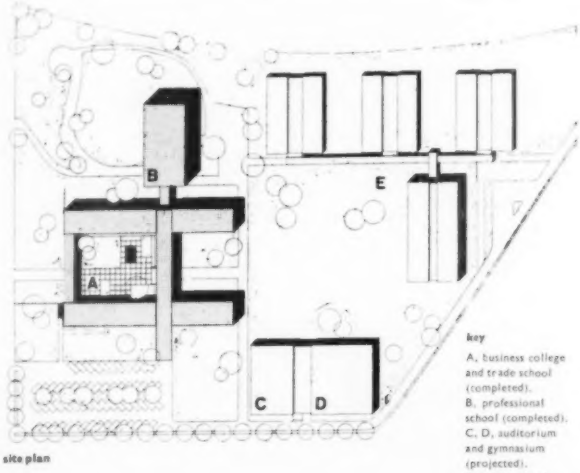
The structure is a reinforced concrete frame with steel curtain-walling. The panels below the windows are of enamelled steel sheet in a strong red colour. The two end walls of the concourse, which is 320ft. long, are faced with sculpture by the Berlin sculptors Hans Uhlmann and Bernhard Heiliger.

2, BUSINESS COLLEGE HEIDELBERG

ARCHITECT, F. W. KRAEMER

The winning design in a limited competition. It consists of two separate departments of the same floor-area: a business school, which occupies a compact five-storey wing (B on the site plan), and an advanced commercial college and institute of economics, linked to it but housed in lower buildings planned round a courtyard (A on site plan). Other educational buildings are to be built later on this triangular, well-planted site outside the town.

The entrance to both departments is in the long staircase hall, also serving as a general crush-hall, which links the two parallel wings of the commercial college building and closes one side of the paved courtyard. It is on the axis of the five-storey wing. This hall occurs on all three floors, the entrance to the building being on the intermediate floor since the site is 10ft. below the level of the approach road. The five-storey wing has an open play-area and bicycle shed on the ground floor. The building houses 2,500 students. It has a reinforced concrete frame, poured in situ except for the vertical mullions of the entrance hall, which are precast. Infill walls on the corridor side are of masonry, rendered in colour; on the classroom side they consist of a timber frame, glazed above cill-level and filled below with sheet metal panels enamelled blue and yellow. The halls and corridors have exposed



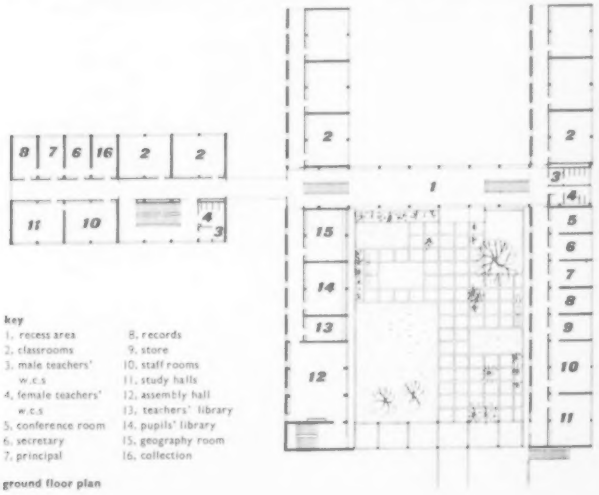
site plan

key
A, business college and trade school (completed).
B, professional school (completed).
C, D, auditorium and gymnasium (projected).
E, public school (projected).

1 (below), the five-storey wing housing the business school—B on the site plan. On the right is part of the commercial college—A on site plan.

1

brick walls internally. The classrooms, etc., are lined with built-in cupboards in natural wood. The casement windows are protected against the sun by continuous aluminium blinds, and have permanent air-vents above, a system of climatic control that has proved so successful that, in spite of the large glass-area, this was the only school in the neighbourhood that was not compelled to close during a recent spell of intense heat.



key
1. recess area
2. classrooms
3. male teachers' w.c.s
4. female teachers' w.c.s
5. conference room
6. secretary
7. principal
8. records
9. store
10. staff rooms
11. study halls
12. assembly hall
13. teachers' library
14. pupils' library
15. geography room
16. collection

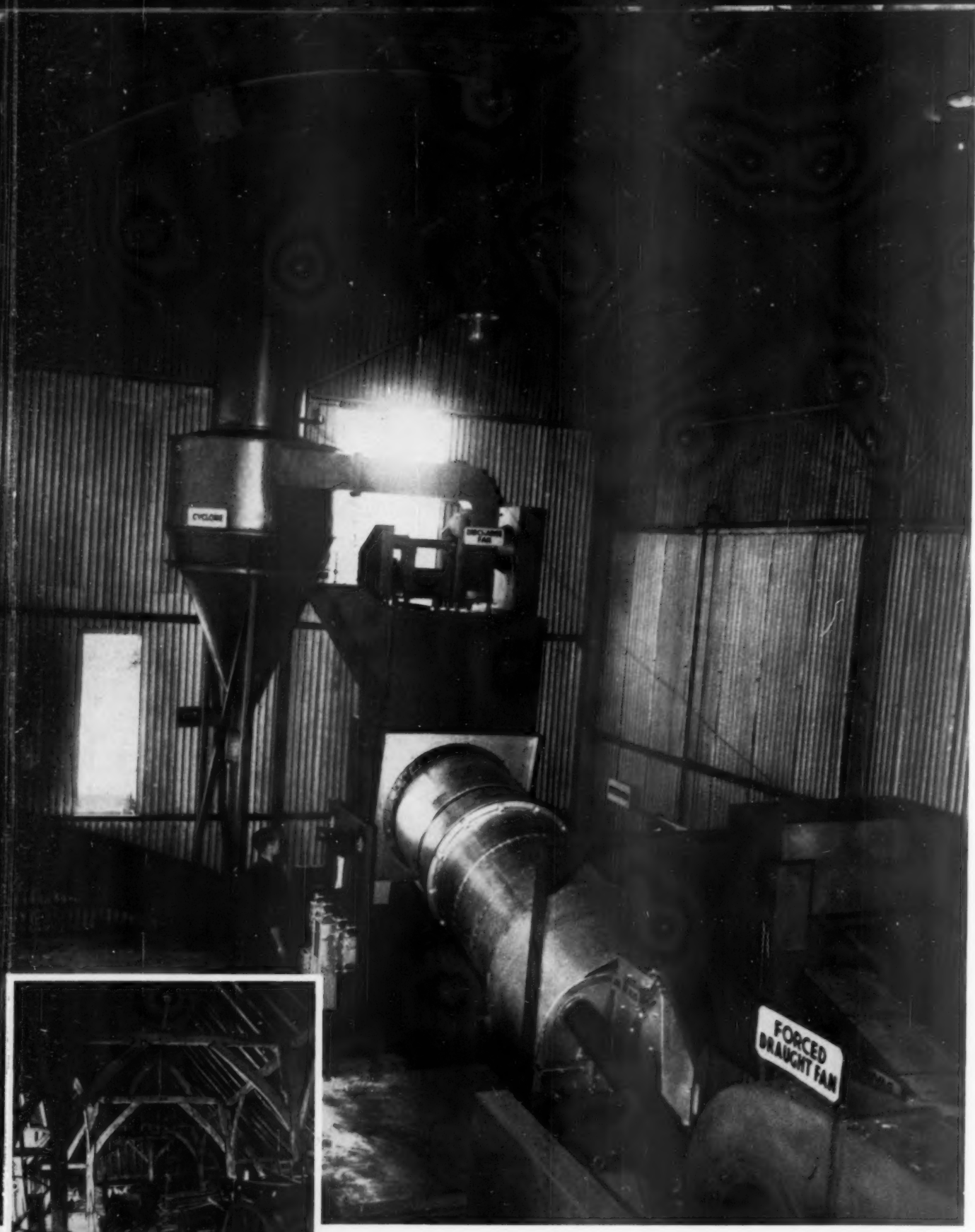
ground floor plan

2

3

4

2. in the courtyard of the commercial college and economics institute with, on the left, part of the open ground floor of the two-storey link between the two wings. 3. looking down the courtyard from the same linking building towards the glazed staircase hall. The ground-level on the far side is a storey lower, this approach being direct to the middle level of the three-storey hall. 4. close-up of part of the two-storey link beneath which the courtyard is approached.



A traditional barn (left) provided all the cover a subsistence farm required, and the need for maximum uninterrupted floor space was achieved by brute force, almost in spite of the materials available. A modern plant building, however, such as this one (above) enclosing an oil-fired grass drier, all too frequently misses the opportunity to relate a building to its function. The result is a reduction in efficiency, heavy maintenance costs for the redundant enclosing surfaces, and—no less important—the building is negative aesthetically since it is neither related to its content nor to the landscape outside it.

John Voelcker

FARM BUILDINGS

Most new British farm buildings are constructed from standardized parts in a very limited range of materials, resulting in structures that are a loose fit on their functions internally, and fail to add up to convincing architecture externally and in relation to the landscape. This situation has a complex history both in farming and the building components industry, and John Voelcker explains in the article below how this situation has arisen, and how ill it suits growing trends in agricultural methods.

But how can buildings be brought into line with demands for constantly improving performance, and yet remain adapted to the peculiar conditions of man and machine-power existing on farms? The REVIEW *proposes to follow the present article with an investigation, also conducted by John Voelcker, into the present state of progressive agricultural opinions on the performance, function, and cost of both buildings and the components of which they are built, leading, it is hoped, to positive proposals for better components and better buildings, functionally and aesthetically.*

Traditional farm buildings are characterized by directness both in the way materials were used and in the way the buildings were planned. For the most part the materials were found locally: clay, stone and slate were quarried and timber was grown and felled, they received little modification before they were assembled. The plan of the farmstead centred round the barn and yard, the smaller buildings were adapted, modified and extended as the need arose and as time passed communicating the delicate equilibrium which is held between the soil, the seasons, animals, and men. Robust as the materials and methods of construction were a century of neglect has left most of them decaying and beyond repair. No less, developments in farming method and changes in the economic circumstances of the country have made many of the buildings which remained in reasonable condition redundant, for their small openings and cumbersome spanning structures are not easily or cheaply adapted to modern needs.

The need to expand and to intensify farming during the war, and the need for efficient farm management since the war both stimulated a great deal of agricultural research. At first this research concentrated on the efficient use of the soil to produce staples such as grain, potatoes and beet, which provided the calorie requirements of the population. Research into the care of livestock for protein followed, and it soon became apparent that the ways in which stock were housed had a significant effect on efficient food conversion. Due to war conditions little practical building research could be carried out but it was apparent that an extensive programme of rebuilding would be necessary if food was going to be produced in any quantity after the war. To this end the Ministry set about a theoretical study of the kinds of buildings that would be required. These would have to be cheap and they would have to serve many purposes. In 1945 the 'Post War Building Study' *Farm Buildings* was published and the Ministry's findings were included. A standardized mass produced building was proposed with main frames at 12 ft. centres providing an eaves height of at least 8 ft. Two spans were recommended one of 16 ft. and one of 33 ft. These sizes were determined in part by the traditionally accepted sizes of livestock buildings and in part by the sizes of equipment which had come into use during the war years. The wider span was considered suitable for covered yards and barns.

Acting on these recommendations the

Architect's department of the Ministry developed a number of related building components known as the MAF system and consisting of precast concrete columns placed at 15 ft. centres and providing eaves heights of 8 ft., 12 ft. and 16 ft. Steel trusses with a pitch of 22½ deg. and spans of 17 ft. 6 in. and 32 ft. 3 in. were available, and the assembled frame was designed to be clad with galvanized steel or asbestos cement sheets. In the course of the next few years many of these buildings, together with a number of older barrel roofed steel buildings were erected. They provided a first-aid remedy to farmers who were without adequate buildings for storage or livestock and who were faced with the frequent need to change their farming programme to make the best use of the subsidies available.

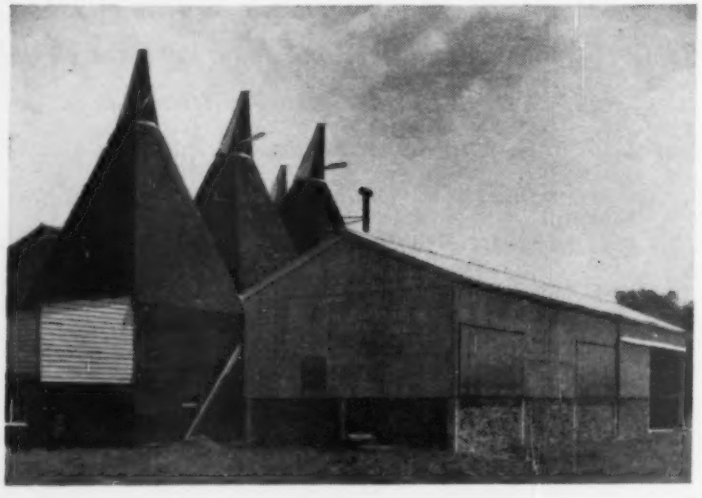
Although farmers are dependent to a great extent on subsidies and credit payments there are indications of market trends which have a more permanent character and therefore provide a basis for longer term planning and investment. Perhaps the most significant of these trends is the consumers' declining interest in staples such as bread and potatoes and an increasing demand for what are known as 'convenience' foods: that is to say, produce or combinations of produce which require very little preparation when they reach the consumer. To satisfy the demands of this market the farmer must be able to do two things: he must produce high quality goods, he must be able to prepare and store certain of these goods until they are needed. Both depend on efficient management and buildings in which the environment can be effectively controlled.

Efficient management and buildings are actively encouraged by the government through direct grants. The Farm Improvement Scheme which is available for ten years under the provisions of the Agricultural Act of 1957 is being used extensively and to advantage. This Act empowers the Minister to make grants of one third of the cost of providing or improving fixed equipment on farms and of making long term improvements to the land. Fixed equipment includes the erection, alteration, enlargement or reconditioning of farm buildings and yards, it includes the provision of permanent services such as water supply, drainage and electricity and includes the construction of roads, pens and fences. The administrative success of the Farm Improvement Scheme has been confirmed by the introduction earlier this year of the Horticultural Improvement Scheme which, among other things, grant-aids the provision of thermal insulation, and a scheme for experimental buildings which will receive an outright grant amounting to half the total cost of the work. It is not yet clear what kinds of experiment will have the Minister's approval but it has been indicated that particular interest will be taken in developments which simplify the feeding and littering of livestock and the cleaning of their quarters since these tasks may occupy as much as 90 per cent of a stockman's time.

During the next decade it is anticipated that a large number of farm buildings will be constructed. But there is a danger that the manufacturers, already well entrenched, will not be sensitive to the changing needs of agriculture. Already many farm buildings are no more than ill-fitting sheds enveloping processes for which an integrated form of enclosure is implicit and potentially cheaper. As a general comment it can be said that the separation of process and cover is only justified when the requirements of a building are so vague or changeable that no relationship beyond the probable maximum limits of enclosure can be found. There are many finely constructed buildings of this kind but their quality will always remain abstract and tentative. If processes with clear articulation and definition, such as many of those to be found in agriculture, are wantonly suppressed the results may sometimes be dramatic but they will always be negative.

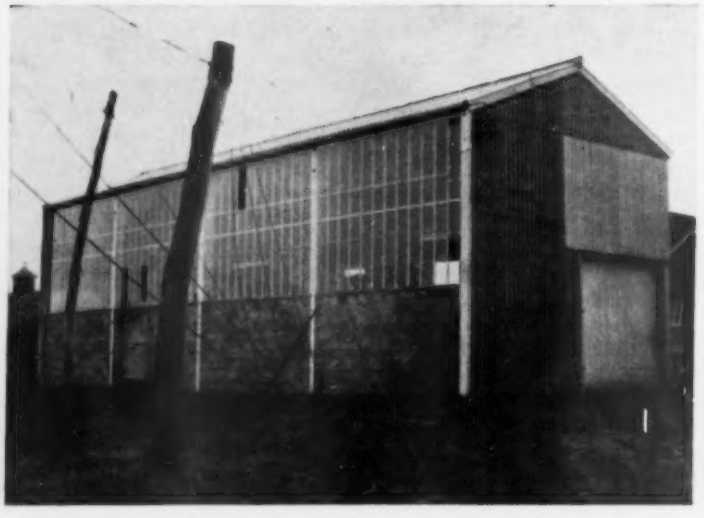
Farm buildings of the past lacked a coherent aesthetic but in its place they revealed strong if primitive characteristics through the use of local materials and crafts which connected them to the land and to the landscape. With the rapid replacement of these traditional buildings the vernacular spirit has died, its return is impossible for local materials are a luxury product and the crafts are dead. An equivalent must be sought in the nature of the processes which underly modern agriculture.

In the last resort there are only two processes. One makes direct use of the soil to raise crops and, because its location is fixed, it corresponds in many ways with heavy industry; the other makes use of animals and since feed can be transported it has similarities with light industry. The soil is used to convert seed, and animals are used to convert feed, into market



1

1, a hop-picking machine-shed connected by conveyor to oast houses behind. Oasts are still used for drying the hops, but the coal furnaces have been replaced by jet oil burners.



2

2, another hop-picking machine-shed partly clad with patent glazing. In both these illustrations the failure to achieve satisfactory detailing in the range of asbestos cement components is apparent, though the degree of agricultural subtopia is still under some kind of control in 2.

3

4

3, pea-vining plant requiring protection from most of the weather. 4, hop-picking machine in which both the plant and the operators need all-round protection. In both cases the initial harvesting process is the same—hop gardens and pea fields are stripped to the ground and the crop is fed into the machine. Hops are separated from their bines, cleaned and taken by conveyor direct to the oasts for drying. Peas are stripped, podded, washed, sometimes chilled, and packed into boxes in bulk containers for transport to a canning or freezing factory.

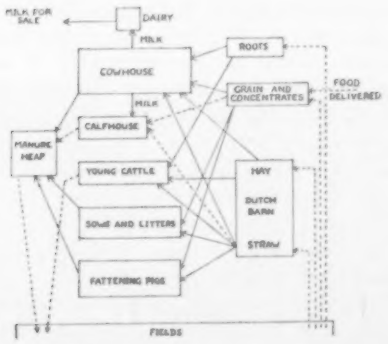
products. By tradition the crop and the livestock processes are combined and complementary to one another, a pattern which provides great flexibility, since the programme of a farm can be adapted year by year to take advantage of changes in the markets and, since the war, changes in the subsidizing policy. It follows that the buildings needed for these mixed farms need to be adaptable and not too specialized, and it is this type of building which is currently encouraged by grant aid. More specialized buildings for production which does not depend directly on the land included on a holding, but on imported feed and keep, seldom receive grant aid.

While the flexibility provided by mixed farming has the advantage of giving security there is no doubt that goods of high quality can only be produced by some degree of specialization. The advantages of specialization are borne out by the successes of intensive market gardening, fruit growing, and (more recently) arable farming where the soil is heavily fertilized and the growing crops are irrigated by a network of demountable pipelines with controlled spray outlets. These crops, although their production is specialized, are subsidized and the buildings are encouraged by the Farm Improvement Scheme or the Horticultural Improvement Scheme because they make use of the land and improve its condition. Buildings are needed for processing crops, sorting and grading, and canning, packaging or freezing the products. Usually production follows a simple linear pattern. The crop is gathered and brought to the buildings in containers hauled by tractors, it is then carried by conveyors of various kinds through the different stages of preparation and finally it is stored in readiness for collection.

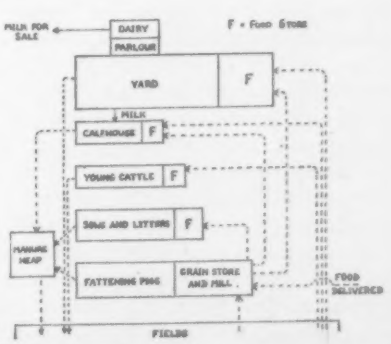
The trend toward specialization in livestock production is hampered by the lack of grant aid comparable with that enjoyed by crop producers. A small farm unit on poor land may receive no grant aid, even though it might be admirably placed to buy-in feed and specialize in, for example, the production of high grade beef or bacon. Despite this initial disadvantage, specialization in stock production is increasing. By 1958 (though in this case aided by special subsidies) 96 per cent of the eggs and egg products required were produced at home in deep litter houses frequently as a specialized venture relying on purchased feed. Broiler production increased by 65 per cent between 1954 and 1958, again a specialized and very vulnerable venture depending on purchased food and high capital investment in buildings containing complicated plant for heating, air conditioning and the general comfort and welfare of the birds. For several years intensive pig production has been a popular if unreliable specialization and there are indications that beef cattle will be the next animals to become industrialized.

While buildings for crop production are seldom more then shelters providing dry storage or providing protection for plant which may be idle for the greater part of the year, the buildings for intensive stock production demand special attention. The conditions which ensure optimum food conversion vary for each kind of animal, the planning of a building depends on the detailed method of stock tending and the success of a building will depend on the elimination of all unnecessary labour. For example, a work study carried out by the Department of Agriculture at Cambridge revealed that distribution of feed and bedding from a centralized store wasted a considerable amount of time and energy, and that modern methods of feed delivery could be used to advantage when storage was decentralized to become part of each stock building. The diagram, 5, shows a typical farm layout, in this instance a mixed farm with a bias toward stock production. Each kind of animal is separately housed and keep is stored in a barn, 27 movements made by the stockman were traced of which 17 were daily and 10 periodic. Three proposals for reducing the time and energy expended in feeding, littering and cleaning were made: firstly it was proposed that a tractor with a trailer should be used for all movements round the buildings; this would involve the continuous use of a tractor and an additional hand to open and close gates. Secondly it was proposed that subsidiary storage buildings should be constructed in strategic positions—an improvement because the tractor would only be required occasionally. And thirdly it was proposed that storage space should be added to each stock building, that feed would be delivered direct to these by the merchant's lorry and that the barn should be put to another use. The second diagram shows that when all storage space was decentralized the number of movements was reduced to two daily and fourteen occasional: the others were completely eliminated. In general, work study shows that it is important to scrutinize the accepted ways of grouping farm buildings and that the replanning of many buildings is no less important than the introduction of mechanical plant.

The replacement of the traditional cowhouse by the covered yard with its collecting pen and milking parlour is an example of radical regrouping. Traditionally dairy cattle were kept in stalls



5

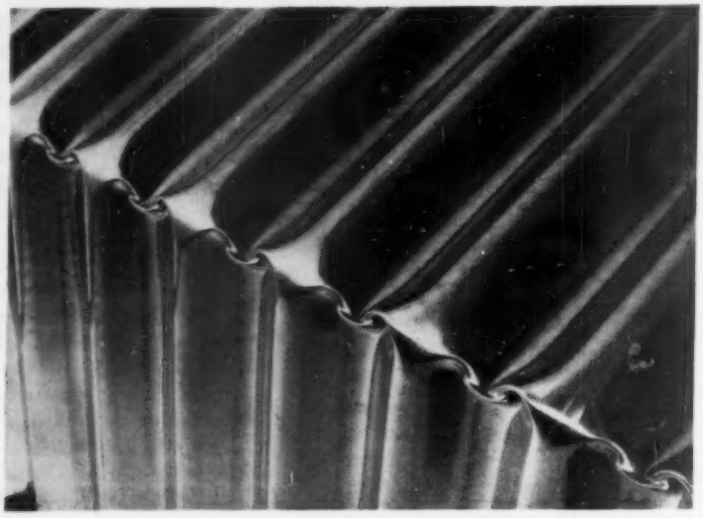


6

5, layout of an orthodox farmyard and the transportation of food, litter and manure—17 daily (continuous lines) and 10 occasional (dotted lines). 6, improved layout with daily movements reduced to two; the occasional ones become 14.

in a cowhouse. In summer they grazed in the fields, and were fetched morning and evening for milking; in winter they were permanently housed. Their bedding and feed were brought from barn or granary, the cowhouse was mucked out daily, and the cowmen milked each cow in her stall carrying the buckets of milk to a separate dairy for processing and canning. In the yard and parlour system the cows are kept loose on straw or timber slats when straw is short. Bedding, when it is used, and silage feed are stored in the yard and the cattle eat direct from the silage face, rationed by means of electric fencing. At milking times the cows pass through the collecting pen to be milked in batches in the parlour where concentrates are also fed. The yards are cleaned out once a year providing valuable manure. By making the cattle move—and they are readily trained to a routine—instead of man, double handling of food, bedding, dung and milk are eliminated and much of the cowman's time is saved.

It seems that farming through subsidy juggling is growing less important as the demands of the consumer market become more clearly defined. A recent number of *Land* (the farm journal of the Shell Chemical Company) analyses market trends over the four-year period between 1954 and 1958, and shows that the demand for milk, bread and potatoes has decreased while the demand for high quality foods such as butter, cream, beef and poultry has increased together with quick frozen foods, canned vegetables and soups, the so-called 'convenience' foods. Economists agree in general that the trend from mixed to specialized farming may be expected to develop irrespective of the present government's agricultural policy. Many of the buildings required will be experimental since plant design and farming methods may develop rapidly and many may need modification or replacement within a few years. No less important are the implications of this trend for planners; positive country planning is an art which has never been exercised but it may need to be soon. Thus American farmers, as dependent on subsidies as farmers in this country, are devising a new economy for themselves known as 'Agribusiness,' within the already highly developed framework of farmers' co-operatives. They have set about making direct contact with the consumer market through the retail trade, with research biologists and the fertilizer industry, and they have built up their own transport services. Co-operation between farmers is known as 'Horizontal Integration,' and the newer interfunctional co-operation is called 'Vertical Integration.' For the planner the combination of the two should provide a coherent programme for country planning in which a sequence of buildings linked by its own communications system reaches from the backwoods to the very centres of the conurbations.



7

7, the eaves detail of the farm building illustrated opposite, 10, the cold bent corrugated aluminium sheeting gives an edge detail that is far more satisfactory than those possible in asbestos.

In Britain since the war a number of industries has been encouraged to specialize in components for farm buildings. Materials were in short supply, cheapness and ease of assembly were the design criteria and very soon a range of components had been defined. Concrete blocks, asbestos cement products and precast concrete structures were the principal components, galvanized steel tubes welded together or jointed with removable clamps were used for fences, gates and internal fittings such as cattle yokes and pen divisions. They were eminently suited to the needs of general purpose buildings and the industries expanded rapidly as the economic benefits of mass-producing multi-purpose components became apparent. The typical building which results from the use of these components, and which can be found in every part of the country, has a precast concrete structure, a roof pitch of 22½ deg. and it is clad with corrugated asbestos cement sheets, concrete blocks, or a combination of the two.

The concrete structures have developed from the MAF frame which consisted of a steel lattice truss, supported at each end on precast concrete stanchions. The steel trusses were surplus stock which had been fabricated for military buildings. The supply soon ran out and manufacturers turned to precast concrete for all structural members. For the most part the structures produced were portal frames with haunched columns, tapered roof members and a pitch of 22½ deg. Roof members were rigidly bolted to the columns and a hinge was formed between the roof members at the apex of the roof. The MAF system's choice of spans and eaves heights has been progressively extended until today the industry will supply any span between 15 ft. and 65 ft., any eaves height below 30 ft. and the spacing between frames can be varied. In addition to the original relatively steep pitch, an 11¼ deg. roof is available and for many purposes it is useful because the volume of roof space is reduced and ventilation can be controlled with greater accuracy. In detail these buildings have been improved, the MAF columns were complicated castings and the trusses were an obstruction when the roof space was needed. One major improvement both structurally and aesthetically has been to separate the joints of the frame from the point of maximum stress between upright and roof member, the uprights are cast with a cantilevered extension and a single roof member is supported between them through bolted scarf joints. A particular advantage of this design is that stresses are evenly distributed over the inclined portion of the frame, the cross section need not be increased as it approaches the eaves, therefore the roof member which determines the span of the building can be cast to any required length by blocking the formwork. This simplified frame is more practical and more graceful than the chunky kneed portals.

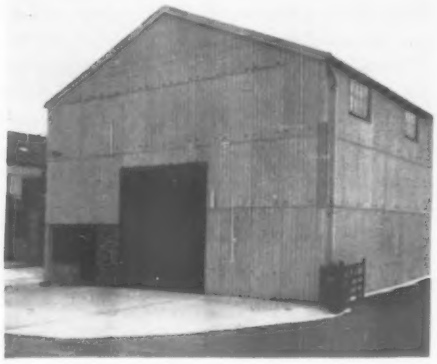
It would seem that the development of precast concrete frames for farm building is reaching its limits, further increases in the sizes of structures are needed but the members would be too unwieldy. It is likely that the manufacturers will have to turn to the design of prestressed concrete structures in which greater spans are practical if they are to maintain their present level of production because timber and steel, their development retarded when they were in short supply, are regaining popularity.

Timber is regaining its popularity because timber construction has been revolutionized. Effective protection against

[*continued on page* 187

8, the enclosure of frames used for agricultural buildings needs special attention; the illustration shows a standard type of concrete-framed building enclosed with corrugated asbestos sheets.

9, the inside of the building, typical of many similar structures, put up for storage purposes and revealing many of the most common faults. In general the sheeting should not extend to the ground; asbestos is brittle and easily fractured. The building has the appearance of an untidy parcel, only the door to the office and the field gate give any indication of its size. The asbestos components used on the gable end and on the corners fail to give adequate definition to the surfaces and the surfaces themselves lack clarity of either single surface, or a banded or panelled surface. The arbitrary character is increased by the lack of correlation between the large door, the brick-panelled office and the layout of the asbestos sheets. The high standard windows would be comic even if they served a useful purpose.

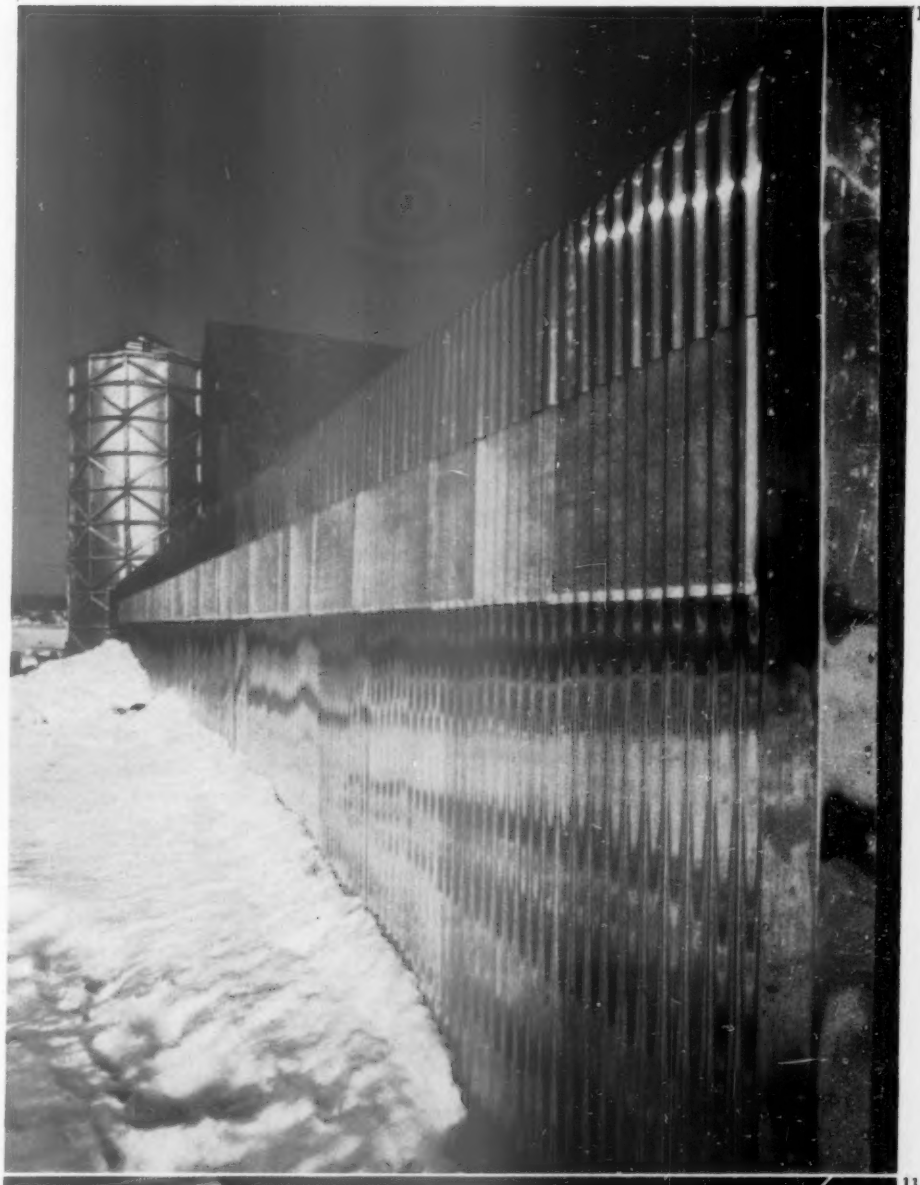


8

10, a Swedish farm building in which aluminium cladding fixed to a timber structure is used. Care has been taken with the corner and gable components; the continuous strip lighting and the cold bent eaves (illustrated in detail opposite) show that the use of sheeting has been accepted and rationalized while the qualities of the materials themselves—the highly reflective aluminium contrasted with the matt translucent fibreglass—are very much superior in appearance to asbestos combined with metal windows.

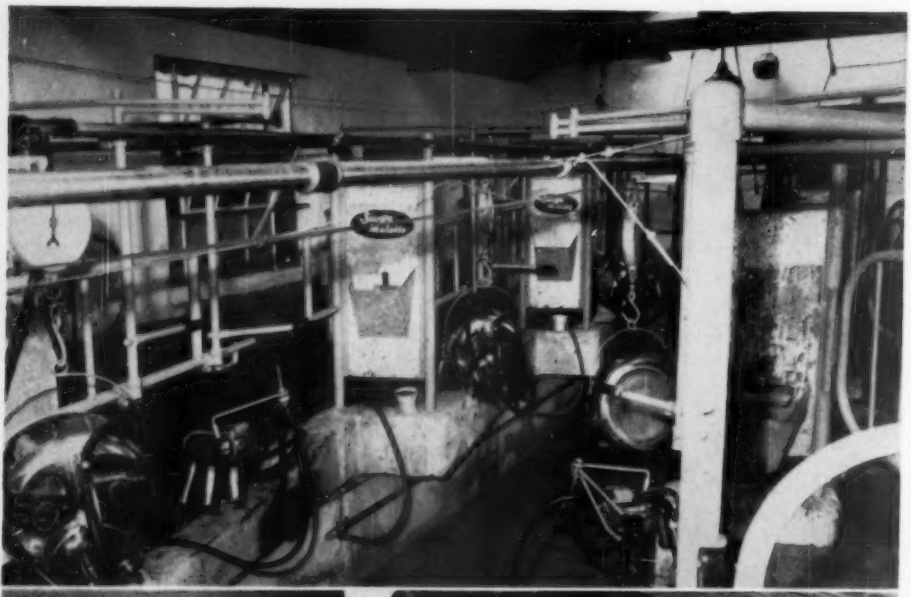
11, another Swedish example, this time a wooden structure, closely adapted in form to its function, contrasting strongly with 9, below.

9



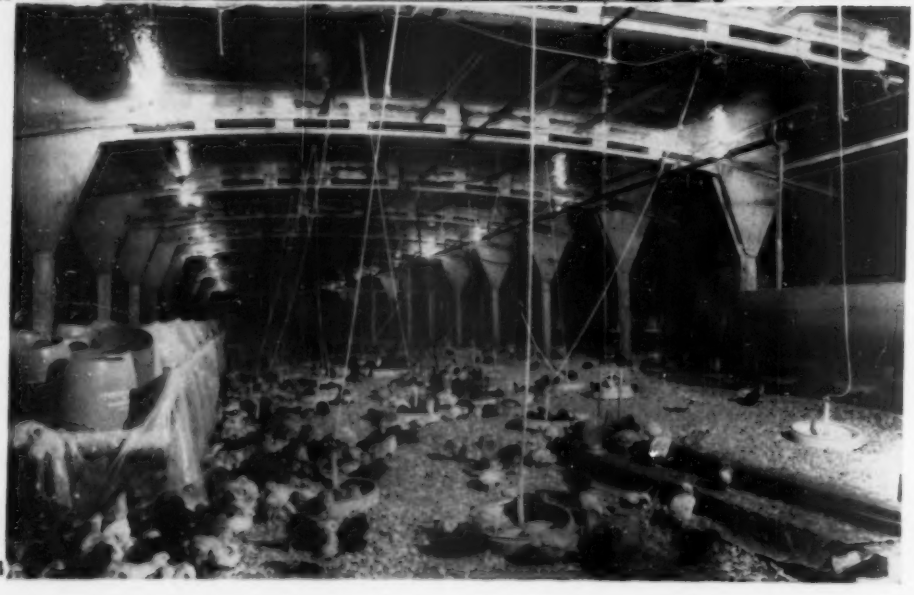
10

11



12

13



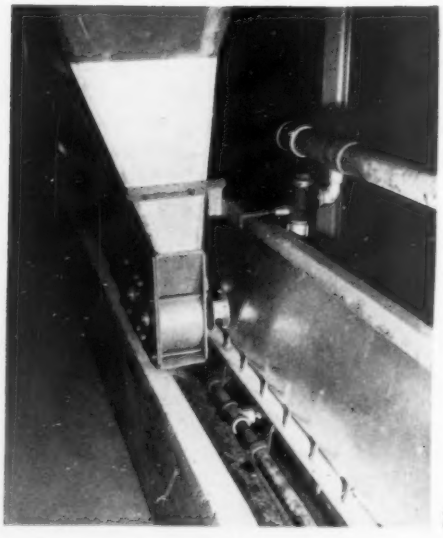
14

12, *a two-level herringbone milking parlour. The cattle are collected in a small yard adjoining the parlour and are automatically milked in batches of eight, while concentrates are fed. The cows are milked into stainless steel containers and the milk is then collected in a bulk storage tank.*

13, *a characteristic of farm building is the continual variation of floor levels. Floors are never level in stock buildings. If draining and easy cleaning are essential, the use of ramps and changes in level can often reduce work considerably. In this pig building for nursing sows, the gangway is raised, providing creeps where the piglets may go to escape being crushed by the sow. Infra-red lamps are fixed on the underside of the flooring to heat the creeps, and access to them is provided by hatches.*

14, *the most intensive type of stock farming practised in Britain is broiler production, requiring plant such as this broiler house designed by the architect Simon Dale. It is constructed of timber and is fully serviced with an oil-fired boiler, complete air-conditioning by means of thermostatically controlled fans, and dimmer-controlled lighting to ensure optimum conditions and check cannibalism.*

Some indication of the complexity to be found in stock buildings used for intensive production is given by these illustrations.



15

15 *shows a travelling hopper which rations out feed into a pig trough. The hopper automatically operates the drinking water supply as it passes each valve mounted over the trough.*

Automatic plant and equipment for milk, broiler and pig production have developed rapidly during the last decade, and there are indications that beef production may be the next to be intensified, by auger-feeding and the use of slatted floors.

continued from page 184]

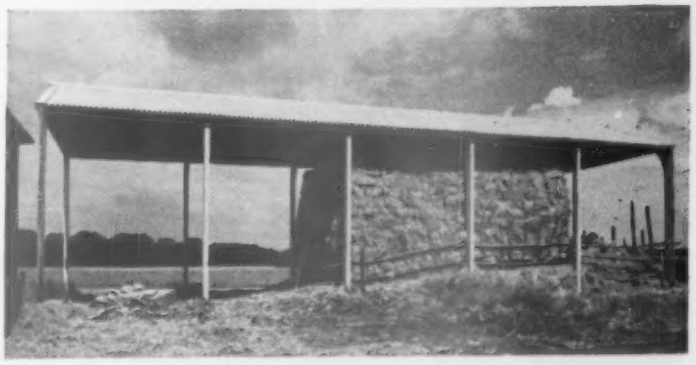
rot, the use of metal connectors and synthetic adhesives have made the construction of high strength and lightweight structures with adequate resistance to exposure possible. With the aid of design drawings and instructions which TDA are willing to provide large span structures using readily available scantlings can be built on the site to suit particular needs. While the structural design of the many beams, trusses and frames available is excellent some of the details, particularly the joints of latticed frames, need more careful attention. The overshoot of members and the bracing of main junctions are essential, if their sizes and positions could be disciplined they would contribute much to the aesthetic qualities of timber construction. Steel is regaining its popularity because small members with a high strength are needed to carry the increasing amount of plant needed on farms. This plant may be heavy and may cause considerable stresses because it includes moving equipment such as conveyors or vibrators. In addition to its strength a steel structure is adaptable and old plant can be replaced or modified with ease. Although methods of rust prevention have improved and steel structures themselves have been simplified it is unwise to use steel where condensation is likely or there are concentrations of ammonia in the atmosphere.

The appearance of concrete, timber and steel structures is satisfactory but the spaces defined by the structure of a farm building rarely bear any relationship to the functions contained within the building. There is little doubt that the standards adopted by the industry are over-simplified. It is becoming increasingly difficult to relate any kind of product to its purpose with precision and it is even harder to relate different groups of products to one another—the most satisfactory agricultural buildings are the dutch barns where the function is general and the minimum number of components is used. The more complicated the requirements of a building become the more confused are the results. The kind of flexibility which industry had provided for general purpose buildings has become a limitation in the design of buildings for specialized farming.

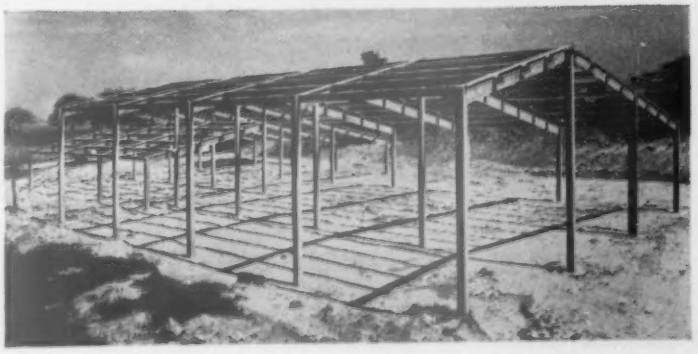
Increasing specialization in farming and the use of expensive plant and equipment is leading to the fuller enclosure of farm buildings. There is little doubt that the materials at present in use, concrete blocks and asbestos cement sheets, will continue to be used extensively, together with other materials such as large concrete infill panels already in demand, plywood, insulating materials, and metal sheets.

Concrete blocks are used where mechanical damage or damage by stock is likely; the colour depends on the aggregates available to the manufacturers and their surface can be dense and smooth, or coarse. There is usually a choice of blocks in any area, but their appearance depends on the skill with which they are laid. Asbestos cement will almost certainly remain the predominant material because it is cheap, it is versatile and replacement of broken components is simple. The natural colour of these products varies from dark to light grey and although attempts have been made to colour them either during manufacture or by the application of cement based paints no dye or pigment has been found which can resist the chemical action of cement for any length of time. The surface of asbestos is not reflective so that large areas of sheeting are not enhanced in the way metal sheeting is by the effects of light. The sheets habitually used for cladding farm buildings are corrugated in profile and it is indicative of an indifferent if not of a negative attitude to design that the same profile should be used indiscriminately for every sheeted surface, rather than different profiles for roof sheeting and for wall sheeting where the protection required and the stresses are different. Thus an opportunity to articulate the general form of the building in a rational manner is lost and no practical advantage is gained. Since the forms of so many buildings can only be made clear through cladding and most of this cladding is made from asbestos components it is to be regretted that the accuracy and precision with which they are manufactured cannot be maintained when they are assembled—the methods of jointing are

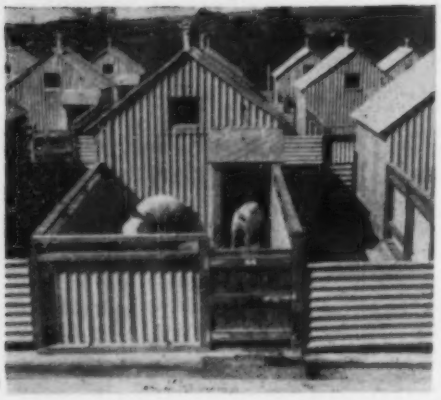
16, *a steel frame in common use for the last forty years. Light lattice arches are braced by the corrugated steel sheeting.*



17, *a precast concrete frame with rigid joints roofed with corrugated asbestos cement sheets.*

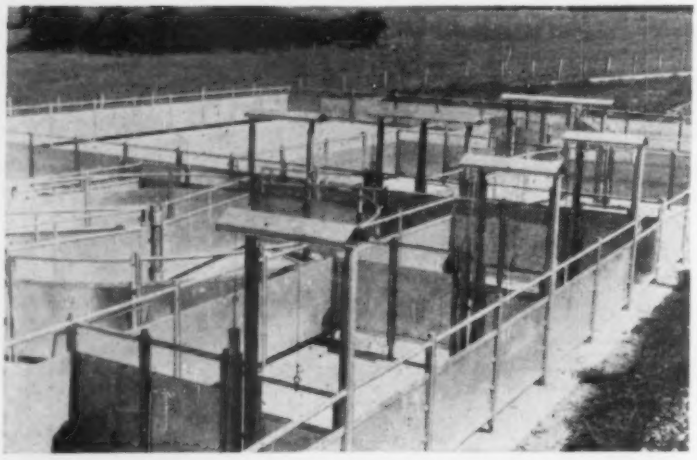


18, *a lightweight prestressed concrete structure manufactured in Germany.*



19

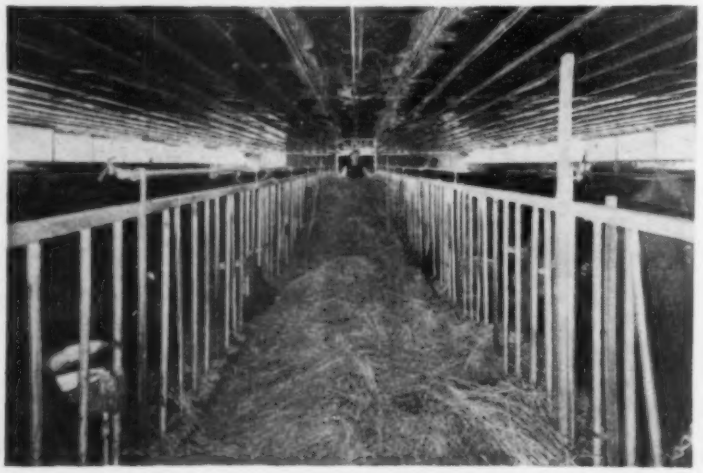
19, *a cluster of pig arks constructed of corrugated asbestos cement sheets fixed to timber framing, a direct adaptation of mass-produced materials to vernacular architectural concepts.*
20, *sheep pens with circular dip, footpath, drench and race constructed of galvanized steel tubes and sheets, giving a far more sophisticated design than in* 19.



20

21

21, *slatted timber floors have been introduced recently for sheep, calves, pigs and beef cattle. Dung falls between the slats to be collected in semi-solid form.*
22, *a Swedish cowhouse (in fact, the interior of the aluminium clad structure seen in* 8*) in which feed is stored between two banks of cattle yards. Feeding is regulated by the use of remotely controlled yard yokes.*



22

neither accurate nor precise. The effects of this shortcoming is most apparent when asbestos is used, as it frequently is, to cover large unbroken areas of wall. A band of corrugated asbestos one sheet deep may have an admirable appearance particularly when the main structure of the building appears above or below it, but an area over which sheets are lapped both vertically and horizontally is much less satisfactory. It cannot be appreciated as a single surface because the lap at the bottom of the sheets and the bolts securing the sheets to the structure are apparent and yet it cannot be appreciated as an assembly of bands because the corrugated line of laps and the scatter of the bolts are too indefinite. This lack of definition might be overcome if the components which cover the boundaries of each surface were designed to give them clearer definition. An improvement of some consequence might be to redesign the joints between the sheets and the structure.

While no very startling advances are to be expected in the design of structures for farm buildings or in their cladding the development of mechanical equipment for handling crops and stock is already having a marked effect on the internal planning of buildings and an even greater effect on the planning of the complete farm unit. The economic need to intensify production combined with the steady rise in labour costs has stimulated the development of installations and mechanical plant for processing crops, feeding stock and for mucking out their buildings. In its simplest form this equipment is no more than the modification of accepted methods: for example the shortage and high costs of bedding for stock has been countered by the introduction of slatted floors through which the dung drops to be collected periodically from the basement below by means of sludge pumps. More complicated installations such as power driven scrapers for cleaning, pipe and valve systems, distributive conveyors and horizontal augers for feeding are frequently used. A characteristic of this mechanical equipment is that straight uninterrupted lines of communication through the buildings are required, this linear characteristic is no less necessary around the buildings where tractors and trailers are used.

It has been noted that the traditional plan of a farm centres round the farmyard, a rectangular court often with a dung stead at its centre. The yard was enclosed on its northern side by the barn, this was full in winter and its height gave protection from the cold winds, the stock buildings were placed on the southern and eastern sides so that the stock benefited from the morning sun and the implements were placed on the western side so that their cover gave shelter from the prevailing wind. Farm work was manual and the short distances between the building saved energy, in fact the concentric plan was ideal. The introduction of the tractor and the dependence of farms on road transport for the delivery and the removal of feed, and products, and more recently the increasing use of mechanical equipment within the buildings have revolutionized the traditional plan.

A wide well surfaced roadway replaces the farmyard, at one end it connects to the public highway and at the other it provides access to the fields. Implements, seeds and crop products are housed to one side of this road ready for use in the fields or for collection, the stock enclosures together with their ancillary buildings are placed on the other side, feed stores are accessible from loading bays adjacent to the roadway, a loop road encircles the buildings and the dung stead is sited at the other end of the buildings, far enough away to allow for the linear extension of the stock buildings. The new mode of modulating the pattern of the countryside which is implicit in this type of planning, deserves to find a convincing expression in the non-vernacular buildings of agriculture's immediate future.

22

23

22, an umbrella-building from Brazil. Under the local climatic conditions, four production processes and storage can be sheltered by the two open-sided spans. The roof and gables are covered with corrugated metal supported on purlins and lattice trusses.

23, granary and store of a farm at Minety, Wilts, designed by Stillman and Eastwick Field, one of the few leading British offices with extensive experience of farm design.

24, a grain-drying shed erected at Wye College. The roofs and gantry housing are corrugated asbestos cement with translucent lights, the walls are constructed of timber battens fixed to rails with air spaces between so that the moisture released in drying can be quickly dispersed.

All three examples show how much imaginative design, whether by an architect or not, can contribute to the functional rationalization, as well as the aesthetics, of farm design, even when using standardized materials.

24

OVERPASS ABOVE HOLBORN VIADUCT
MAJOR INTERSECTION AT SMITHFIELD
PARKING IN HATTON GARDEN
LUDGATE C
FLEET ST.
HIGH HOLBORN
FARRINGDON RD.
CLERKENWELL RD.
this would mean this

Kenneth Browne

The horrifying picture opposite gives warning of the destructive effect that new road engineering, planned solely in the interest of traffic movement, might have on a city like London. The prize-winning scheme in the recent 'New Roads for London' competition (opposite, top) suggested such a solution, on lines that have already caused havoc in American cities. But the second prize was won by W. K. Smigielski with a scheme (model below) that showed a quite different approach, one which put the interest of London before that of its traffic. Some points of Mr. Smigielski's scheme are brought out on the following pages in which its impact on the West End of London is illustrated.

THE TRAFFIC PLAN: ENEMY OR ALLY?

The chief lesson to be learned from the Piccadilly Inquiry was that in future no road improvement programme is acceptable unless it forms part of a comprehensive redevelopment scheme; thus making sure that buildings and roads are considered at one and the same time. No longer can we allow civic values to be sacrificed to the insatiable appetite of the traffic monster by blinkered specialists.

Yet the danger is great. London is choked by traffic and the piecemeal programme of the LCC, merely uncorking the worst bottlenecks, is no answer because it is not related to any up-to-date study of what is wanted. It is geared, and low-geared at that, to the outdated Abercrombie Plan of 1944 when the present increase of vehicles was never imagined. The visual result of this is at best a Hyde Park Corner or Marble Arch 'improvement scheme', neither of which is conceived as civic design but is merely an attempt to glamorise the traffic diagram imposed by the road engineers. Since no one has done the necessary thinking on London's traffic problem, present road works cannot be effective and are continually destroying townscape. Experience in the United States has shown that the mere provision of bigger and better roads is not the answer and only generates more traffic, whilst destroying effectively all the civic qualities which make urban life worth while.

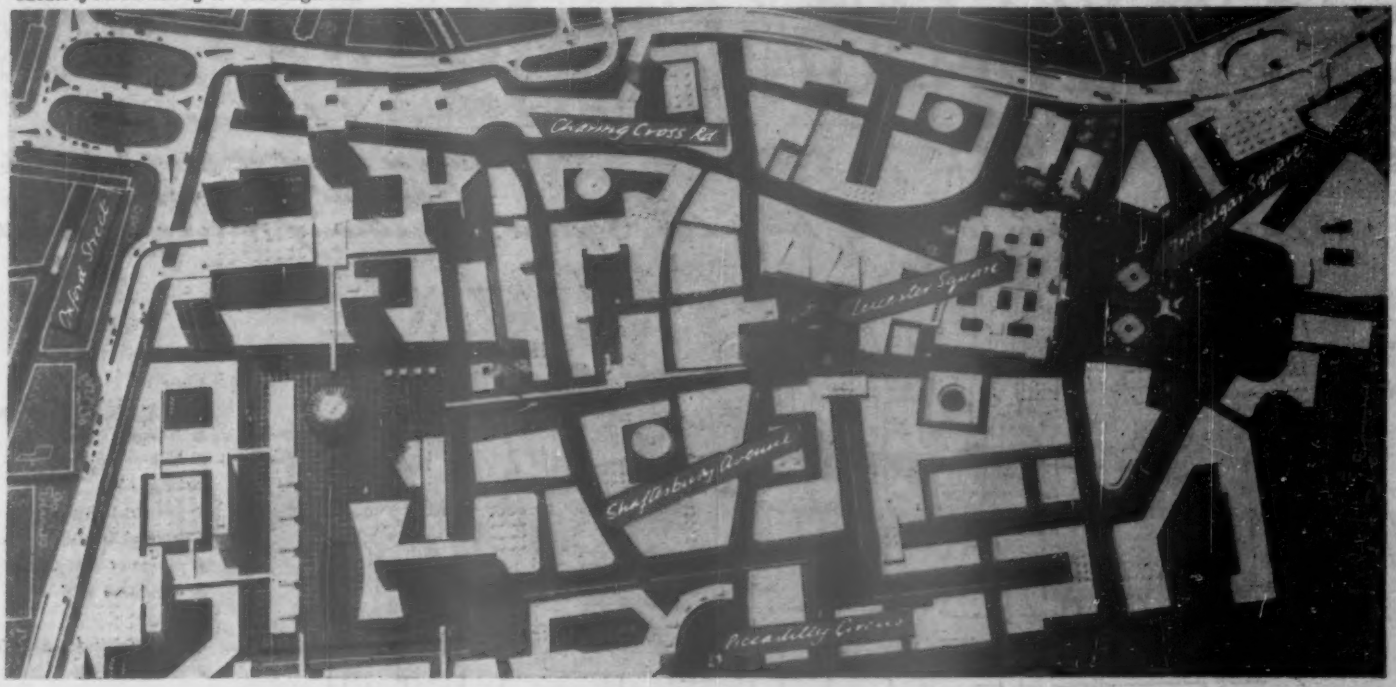
It was in a commendable attempt to draw attention to what could be done, and in the hope of getting government action, that the Roads Campaign Council last year organized their 'New Roads for London' competition—the contestants being asked to provide a plan which would cope with London's traffic problems for the next 20 years or so. Considering the vital importance of the problem, the competition did not arouse the interest it should have done, partly, no doubt, because of the difficulty of showing the layman what each scheme implied. The first flush of mild interest has now been replaced by apathy, typified by the lowest ever turn out of the members of the LCC to hear the plans described. The government does not want to know about it either, presumably because of the vast expense entailed.

However, sooner or later a government will be forced out of makeshift 'solutions' and will have to do something about this problem; there are signs of it already—then perhaps the prizewinning schemes in this competition will be examined. When this does happen, it is to be hoped that the order in which the schemes were placed by the judges will be ignored, for to carry out a road programme for London on the lines of the prizewinning scheme would be disastrous. The engineer* who designed it said in his report that it 'shows that a modern urban motorway need not seriously disrupt an existing town pattern.' In fact his model (top, facing page) shows exactly the opposite, and whatever its merits as a scheme for keeping traffic moving, its effect on London would be chaotic. It would be the U.S. story all over again, with the difference that in our case we have so much more in the way of good urban scenery to destroy. It demonstrates clearly that the wide radius sweeps demanded by a modern 100 ft. motorway, fine in rolling countryside, will slash a tight built city to pieces leaving unusable segments of land marooned between the scything curves.

By contrast, the architect planner's† scheme which came second (shown below) not unnaturally

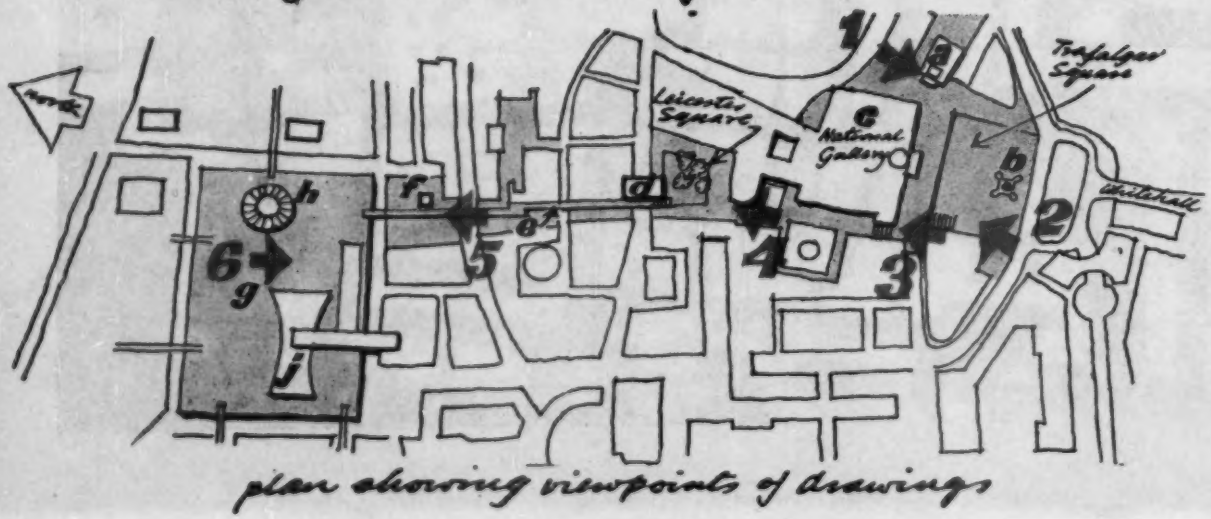
* J. A. Proudlove. † W. K. Smigielski.

Model of the scheme by W. K. Smigielski.



This is what it could be like
At present the foreground is a seething mass of traffic.

1 Looking South towards Trafalgar Square:



plan showing viewpoints of drawings

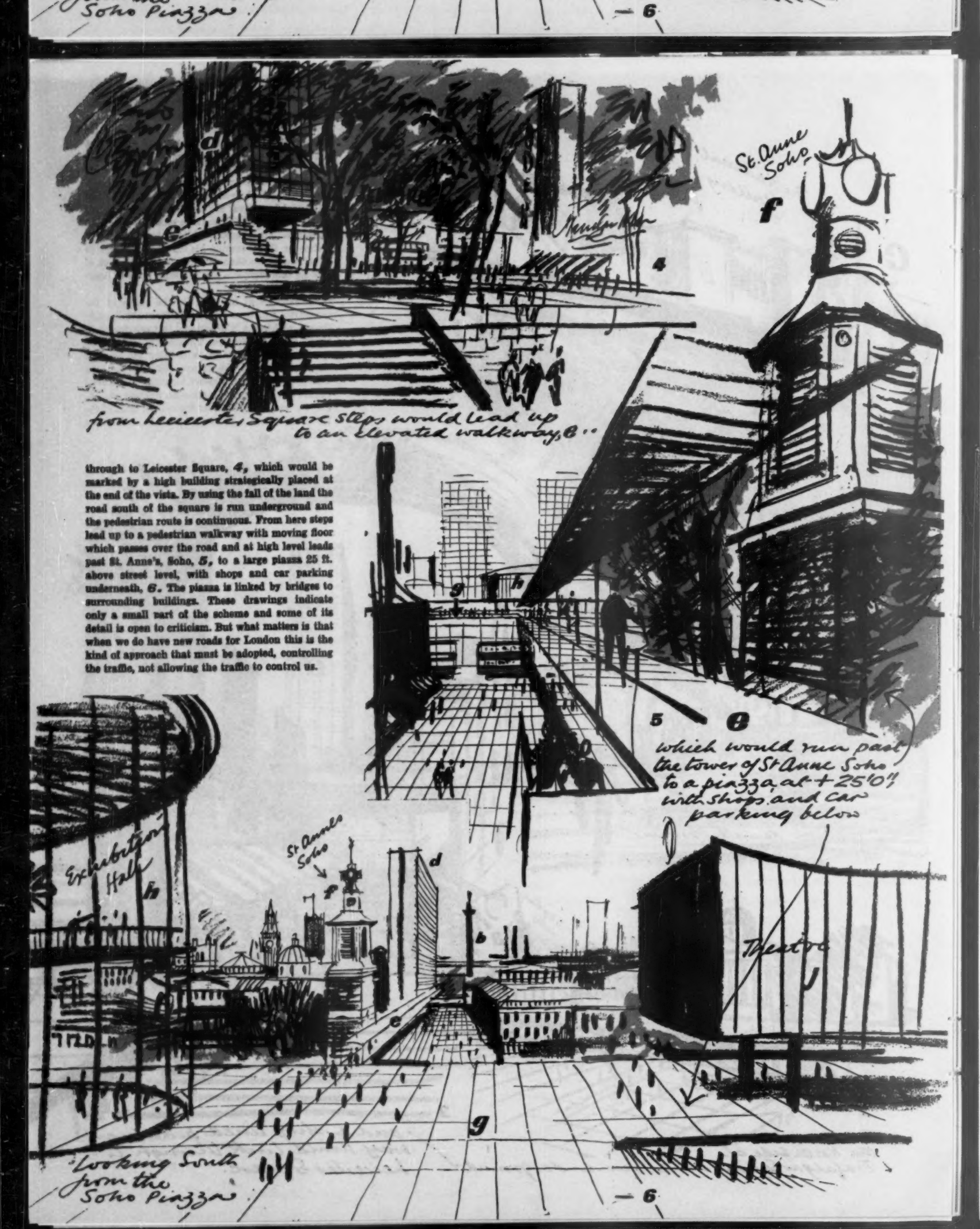
key

- **a** *St. Martin in the Fields*
- **b** *Nelson's Column*
- **c** *National Gallery*
- **d** *tower block*
- **e** *pedestrian walkway*
- **f** *tower of St. Anne, Soho*
- **g** *piazza at +25 ft. level*
- **h** *exhibition hall*
- **j** *theatre*

Shading indicates areas for pedestrians only.

put the interest of London before that of its traffic. Though the judges considered his answer to traffic flow less effective than that of the winner, his approach to the problem demonstrated clearly the only civilised way to tackle it. Whatever its defects raised in vehicles per hour passing a given spot, its merits as civic design far outweigh them. Not only has he attempted to tackle the problem of traffic movement for a great city but has at the same time endeavoured to make London a better place for the pedestrian. He enhances civic values instead of destroying them, routing his raised motorways as far as possible through derelict areas at the back of existing thoroughfares and allowing none to penetrate the central area.

An example of his care for the rights of the pedestrian, which once again the Piccadilly Inquiry showed as being a vital element in town design, is worth tracing. Trafalgar Square would be freed from its vortex of traffic by running the road on the north side of the square underground, and making the whole of the Square, including the National Gallery and St. Martin's, pedestrian territory. *1, 2.* From a terrace formed over the road in front of the National Gallery a pedestrian way, *3,* would link


St. Anne Soho
from Leicester Square steps would lead up to an elevated walkway, 3 ..
which would run past the tower of St Anne Soho to a piazza at + 25'0" with shops and car parking below
Exhibition Hall
St. Anne Soho
Looking South from the Soho Piazza
— 6

through to Leicester Square, *4*, which would be marked by a high building strategically placed at the end of the vista. By using the fall of the land the road south of the square is run underground and the pedestrian route is continuous. From here steps lead up to a pedestrian walkway with moving floor which passes over the road and at high level leads past St. Anne's, Soho, *5*, to a large piazza 25 ft. above street level, with shops and car parking underneath, *6*. The piazza is linked by bridges to surrounding buildings. These drawings indicate only a small part of the scheme and some of its detail is open to criticism. But what matters is that when we do have new roads for London this is the kind of approach that must be adopted, controlling the traffic, not allowing the traffic to control us.

Noel Tweddell

THE NEW TOWN VILLAGE

For many reasons, good and bad, the residential areas of the new towns and those on the fringes of cities consist very largely of two-storey houses. This has created the wide acres of dreary suburbanization that have been so much complained of on account of their monotony, their visual insipidity and their lack of social coherence. While such houses continue to dominate the scene, an urban environment in the traditional meaning of the term will not be achieved. But where, for the social, economic and other reasons outlined in the following article, this situation has to be accepted, all the greater efforts are needed to plan and group two-storey houses so as to create some of the civilized and visually satisfying qualities, if not of the traditional town, then of the traditional village: its compactness, neighbourliness and sense of enclosure.*

On pages 197-204, some recent schemes are illustrated in which such efforts have been made in two of the new towns (Basildon and Harlow) and on the outskirts of an industrial city (Coventry). Using various techniques of rear and footpath access which have allowed them to reintroduce the closed square and alley, and inspired to some extent by the requirements of car ownership, their architects have made, within the limitations set by the use of this one small dwelling unit, a notable advance over the usual semi-detached or terrace house strung along the wide suburban road.

The illustrations of these housing areas are introduced by an article in which Noel Tweddell, until recently chief architect of Basildon new town, describes the evolution of improved, compact housing layouts in recent years and discusses the pros and cons of the planning techniques that have been employed.

The war left us with a great housing shortage, a scarcity of labour and material, high costs and big housing subsidies; but, more important, also with the guiding hand of the (then) Ministry of Health and of Town and Country Planning.

Nowhere are the results seen more clearly than in the housing programmes of big cities, and of the new towns that were then springing up. Almost for the first time considerable architectural and planning skills were focused on them.

The solution adopted has been governed by the availability and cost of land, as much as by the social habits of the tenants and the economic requirements of the programme. Where land has been scarce and values high the tendency has naturally been to build flats and build high, in spite of the greater costs involved, but where development has taken place on virgin land on the outskirts of cities, on new out-county estates and in new towns, the economic and social forces have led to two-storey house development. In these latter circumstances the land devoted to

* See *Prairie Planning*, AR, July, 1949.

housing may well amount to 70 per cent of the built-up area of the town. Typical land-use figures for a town of about 100,000 people are as follows:

Housing: at a gross average density of 45 persons per acre	2250 acres	70%
Industry (manufacturing and service)	400 ,,	12%
Commerce	75 ,,	2%
Public buildings	75 ,,	2%
Education (including playing fields)	450 ,,	14%
Total built-up area	3250 ,,	100%

The housing figure in this instance includes much pre-war housing at low density.

Land-use zoning has put most of the new industrial acreage on the periphery of towns, leaving the small commercial and administrative core embedded in a sea of housing, broken up by schools, shops, local playing fields, the church and a pub or two. Housing, therefore, becomes the dominating feature in establishing the character of the town. But, however important the architectural treatment of the housing may therefore be, there are many other factors exercising a powerful influence on the form that the housing must take, factors which produce a bias towards the small-scale dwelling unit, the least easy to handle from the point of view of solid architectural form. First, the majority of the houses in these large schemes is of the weekly rented type; second, in new areas, the people most willing to move some distance from their old districts are young married couples whose demand is overwhelmingly for two-storey 3-bedroom houses with gardens. There is a great aversion to flats.

A third factor is that houses are also the most economical type of accommodation to build. Few people would wish to pay the higher economic rent for a flat of smaller floor area, without a garden and with less privacy, than for a house. In later years, as the population structure of the new towns becomes nearer to the national average, demands for other types of accommodation may arise, and it is, therefore, permissible to leave sites for blocks of flats, but until they are built the absence of buildings over two or three storeys in height must strike the visitor as odd, if not unpleasant, in its uniformity.

Fourthly, economy is vital; not only to Government approval of the tender figure, but to enable reasonable rents to be charged in proportion to the wages of the tenants. To charge high rents might well lead to 'arrears' when many tenants are saddled with hire-purchase payments for the furniture and other amenities of their new home. High housing rents can also act as a deterrent to a prospective industrialist who might fear discontent among his workpeople, or to a prospective shopkeeper who might think that the spending power of the population was being disproportionately reduced by the amount of the weekly wage earmarked for rent.

1, the corner left open where two terraces of houses meet at right angles—a frequent but unsatisfactory practice.

Fifthly, there is the problem of constructional output. On large estates it is not a matter of building 200 or 300 houses in a year as a neat and self-contained contract, but of achieving five or six times that output year after year. More standardization and a greater simplicity is required than is necessary where a lower annual output of houses is possible. And finally, as a new factor there is the problem of the motor-car. Who would have thought twenty years ago that council housing would require garage provision on a scale of one garage for every two dwellings? Yet this is necessary to-day, and some authorities are already talking of higher figures. The increase in motor-cars generally also brings with it the desirability of segregating pedestrian and vehicular traffic.

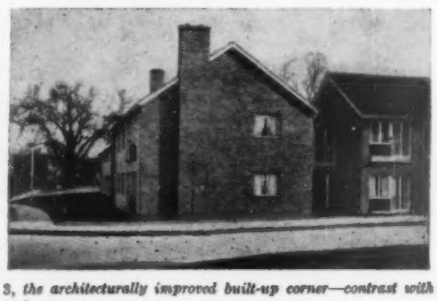
It is no part of this article to argue the rights and wrongs of these social or economic forces, but only to consider their effect on a large-scale housing programme. Subject to variations in detail in different parts of the country, the problem is essentially one of how to group a large number of small and similar units in an efficient, economical and attractive way and so create an environment with as many as possible of the qualities a town should have.

Five years after the war, in the early 'fifties, most layouts were based on a pre-war street pattern: the through road, albeit perhaps a devious one. Zoning had created the neighbourhood, separating residential uses from primarily commercial and industrial ones. Main roads ran between neighbourhoods. But within residential areas the road pattern was still continuous. Although in building terms, the pre-war semi-detached house had given way to the terrace in order to get some architectural form into the scheme, densities were low, partly as a result of the demand for front and back gardens and partly because of the opposition to higher densities by local authorities. Varying building lines only served to some extent to reduce the monotony of the corridor street. The minimum of 15 ft. from the back of the pavement to the house frontage led to streets too spacious and open for the scale of the houses. Adjacent terraces at the corners of two streets, 1, had to be left open to provide everybody with a garden, with considerable loss of architectural quality and waste of road frontage.

Although far removed from the byelaw street in detail, this type of layout suffered (and still suffers, since its use is still widespread) from the same defect of never getting anywhere. There is insufficient enclosure and repose, 2, and this is accentuated by the openness of corners where too much sky leaks in. On the other hand, it is the straightforward solution to the housing problem, and at a time when the country was still recovering from the strains of war, it is perhaps excusable that more creative thinking was not given to the problem.

2, housing layout along continuous road frontages, with wide verges typical of new town and similar practices.

The next phase of development made greater use of the closed corner, both internal and external, and the cul-de-sac. Each arose from economic and architectural reasons. The closing of the corners of terrace blocks, 3, gave better use of street frontage, higher densities and more economical house construction (at the expense of providing some dwellings without gardens). And, similarly, the cul-de-sac increased the number of houses that could be provided for a given length of roads, sewers and services. There was an equal



3, the architecturally improved built-up corner—contrast with 1 above.

[*Continued on page 205*

On this and the following pages are some recent housing layouts, in Basildon and Harlow new towns and in Coventry, in which compactness of grouping and a sense of enclosure have been achieved by the use of rear and footpath access and similar devices, as described in the accompanying article. On each plan the coloured area indicates the area reserved for pedestrians only.

1. BASILDON

FRYERNS 8

ARCHITECT-PLANNER: ANTHONY B. DAVIES (in succession to Noel Tweddell)

Senior architect in charge: J. Farber. Groupleader: M. R. Bool

The design of Fryerns 8 layout was the first limited experiment made in Basildon new town for the separation of vehicles and pedestrians in housing areas. Rear access to houses is mainly from the garage courts (one of which is shown in 6, page 205), but in some cases access is by a footpath at the bottom of the garden, flanked by stores and screen walls. As the demand for garages grew, this latter form of rear access was less used.

1

2

1 and 2, the houses have small front gardens, running down to a single front footpath about 10ft. wide. These are examples of houses grouped round communal greens—see layout plan.

3

2. BASILDON

BARSTABLE 6

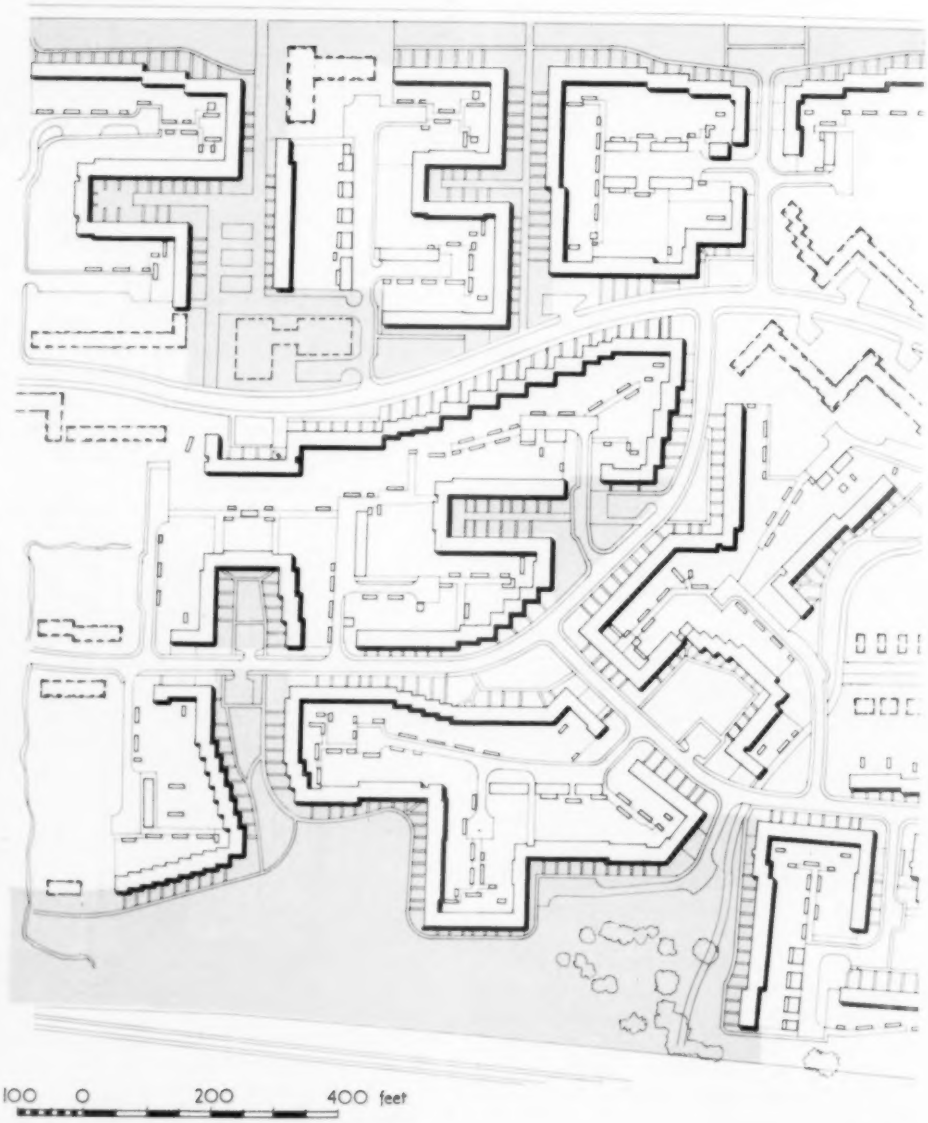
ARCHITECT-PLANNER: ANTHONY B. DAVIES (in succession to Noel Tweddell)

Senior architect in charge: J. Farber. Group leader: M. R. Bool

This layout extends the principle used in the Fryerns 8 area (preceding page). A major road on the north boundary of the site is fenced off but the houses face on to it (avoiding the messy effect of many inward-facing layouts) with foot-path access to the front doors. Instead of a service road there is service access from the garage courts. A steep slope over part of the site determined some of the planning. Pedestrian area is coloured.

4

3 and 4, the pedestrian side of the houses. **Note** the re-use of a Victorian cast-iron lamp-post.



3. BASILDON

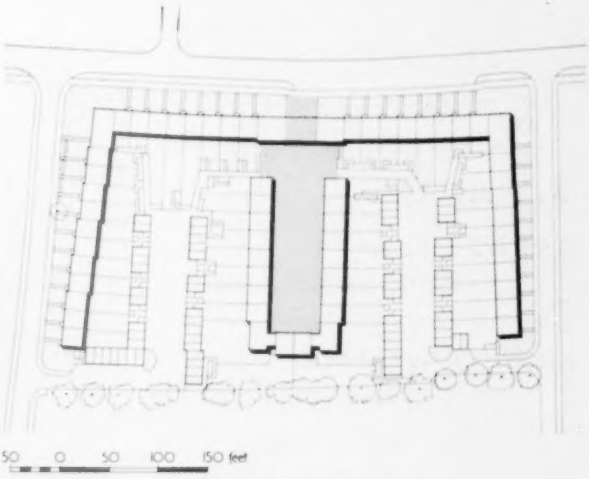
FRYERNS 7c

ARCHITECT-PLANNER: ANTHONY B. DAVIES (in succession to Noel Tweddell)

Senior architect in charge: J. Farber. Group leader: M. R. Bool

A 3½-acre layout on the rear-access principle, designed just after Barstable 6 shown on the preceding page. There are 18 dwellings per acre, consisting of 57 houses and 10 flats. There are 63 garages —almost one to each dwelling. The alignment of the three periphery roads was fixed by external considerations.

5



6

7

5, one of the pedestrian courts (see layout plan). The contrast of texture is obtained by cobbles and whitewashed brick. Note the architectural advantage of not having to provide doors in the fronts of the houses for access to stores, refuse bins, etc. 6, outside the pedestrian court, showing the bridged entrance. 7, looking across the court (which is 55ft. wide) from beneath the bridge.

4. HARLOW

RIVERMILL AND HORNBEAMS

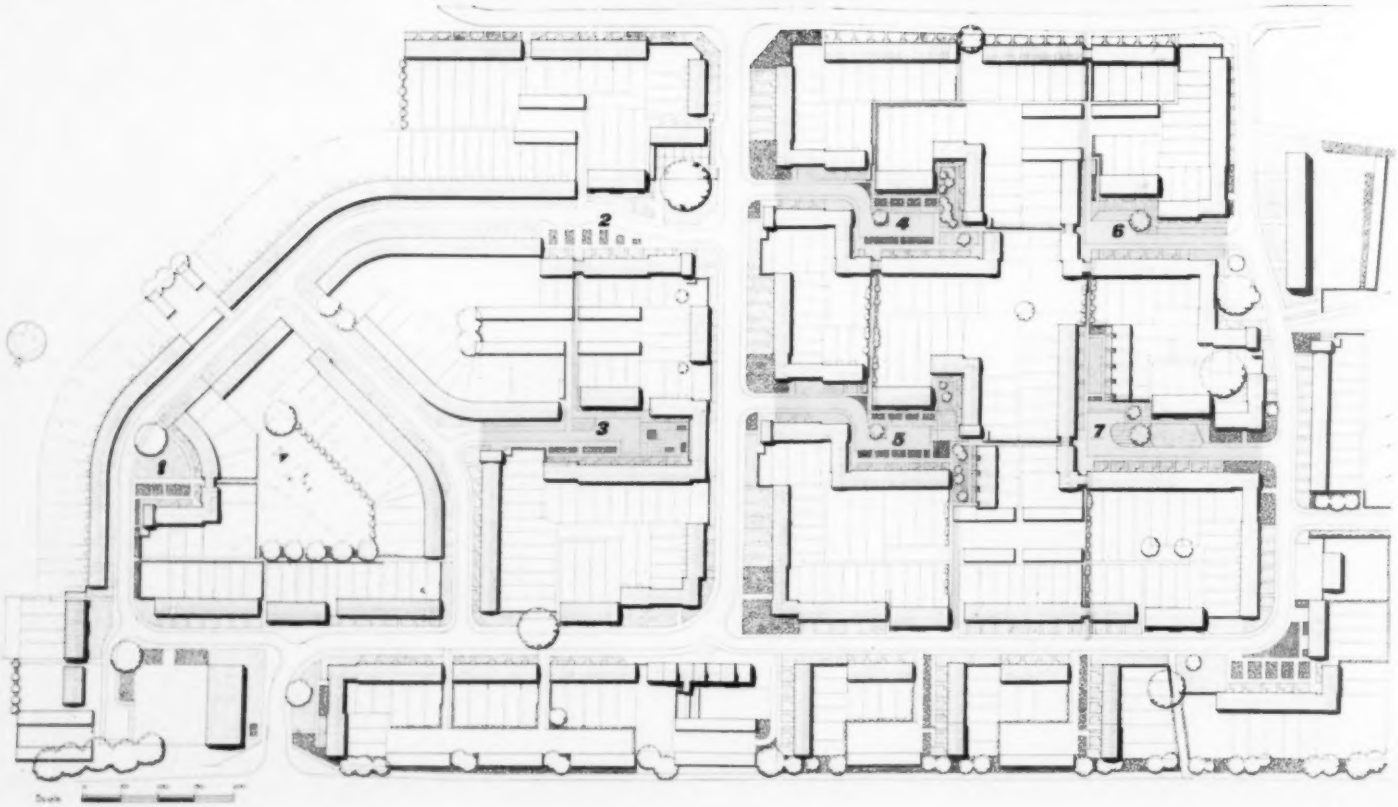
ARCHITECT-PLANNER:
FREDERICK GIBBERD

Two housing groups separated by a spine-road running north-south down the centre of the site (see plan below). They include a number of three-storey buildings, giving variety and enclosure to the streets, but 80 per cent of the dwellings are of two storeys. The road pattern is a combination of through streets (short and mostly curved) and enclosed culs-de-sac or squares, with all distant views closed by buildings. Some segregation of pedestrians is obtained by a footpath system between the house gardens (pedestrian areas coloured on the plan), linking certain roads and

8

9

8, a typical curved street, showing a corner closed by a three-storey house. 9, looking into a curved street from one of the squares (numbered 2 on the plan below); one of the three-storey blocks on the right.



squares. These gardens are dependent for their privacy on screen walls and planting.

As in the Basildon schemes, there are garage courts between blocks of houses, the private gardens and children's play areas also being shut out from the public spaces. On the north side, the gardens of the houses backing on to the main road are partially screened by garage blocks.

The nine identical three-storey blocks, distributed over the site in parallel rows, consist of one-bedroom flats over houses. They also form one side of individual squares. Three-storey houses are used to mark the entrance to squares and to provide dominant elements in localized views.

10

11

12

13

14

Pedestrian ways through the terraces link one square with another. 10, looking into the square numbered 1 on the plan opposite. Note again the townscape use of the three-storey house. 11, looking from the square numbered 5 (see next page) across the street towards the passage beneath the houses leading into the square numbered 3. 12, close-up of the block of one-bedroom flats which forms the entrance to the same square. 13, closer still: looking into the square beneath the block of flats. 14, two terraces of houses linked by an extra bedroom beneath which is a pedestrian passage.

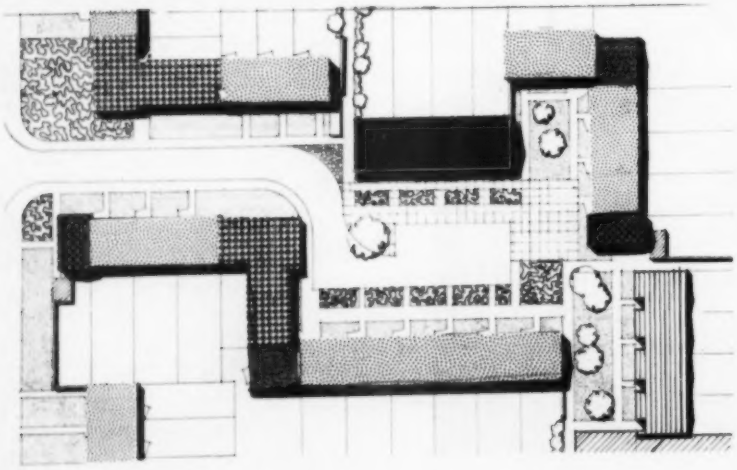
15

16

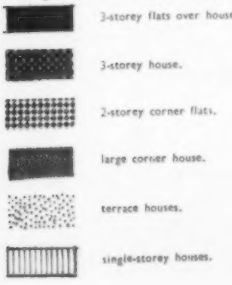
17

HARLOW

RIVERMILL AND HORNBEAMS



Above, three views taken inside a typical square, showing the variety of architectural form. The square (detailed plan on the left) is that numbered 5 in the layout plan on page 200). 15, looking into the square from the corner—the road approach. 16, facing the pedestrian exit between the three-storey house and the bungalows. 17, looking down the pedestrian passage.



5. COVENTRY

WILLENHALL WOOD

ARCHITECT: ARTHUR LING

An area of 33 acres, bisected by a spine-road and a line of tall trees. The portion to the west of this road, illustrated here (the curving road forms the right-hand edge of the layout plan on the right) is laid out so that all dwellings are approached by footpaths at the front and have vehicular access at the rear—the pedestrian area is coloured on the plan. It is possible to walk from every dwelling to any other dwelling and to the shops, nursery-school and pub in the centre of the area without meeting a traffic road, the only disadvantage of this system being the small amount of front parking-space provided and the long walk in some cases from the vehicular road to the front door. Garages, as in the Basildon schemes, surround courts enclosed by the backs of the houses. Their number is just over 50 per cent of the number of dwellings. To the west is the proposed outer link road, from which there is no access to the houses and flats. These overlook parkland beyond the road but are served by footpaths on the east side. Apart from four-storey flats on the western boundary, the area consists of two-storey houses and a few corner flats.

18

19

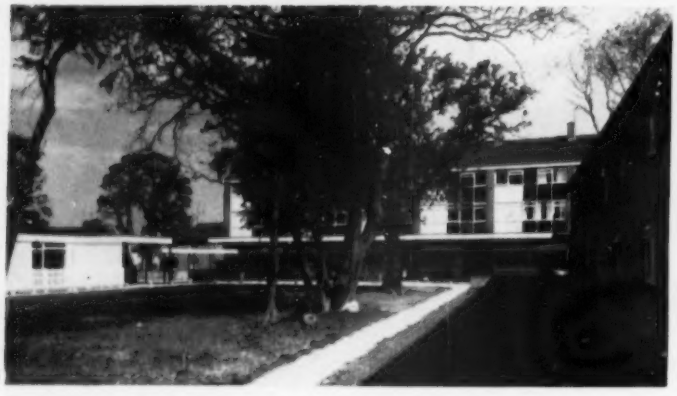
18, one of the blocks of four-storey flats on the western boundary and the beginning of one of the green pedestrian avenues leading to the central shopping area (see layout plan above). 19, looking into the central area from the opposite direction. This is a paved square closed by a row of shops (on right of photograph).

20

21

22

23



24

25

20, looking west towards the junction between two of the green pedestrian avenues. The avenue with the trees leads, round the corner on the right, to the central shopping area. 21, a group of terrace houses round a small open square off the northern pedestrian avenue. 22, looking outwards down the southern pedestrian avenue towards the perimeter road—two-storey flats on left. 23, looking away from the central shopping area to the four-storey flats on the western boundary. 24, the central shopping area, looking north towards the row of shops. The nursery school is on the left. 25, the northern pedestrian avenue, looking towards the shopping area. 26, a typical access road, surrounded by garages, enclosed by the backs of the houses. The poorly designed lamp-post contrasts with the neat design in the public areas—for example in 23.

26

COVENTRY: WILLENHALL WOOD

Continued from page 196]

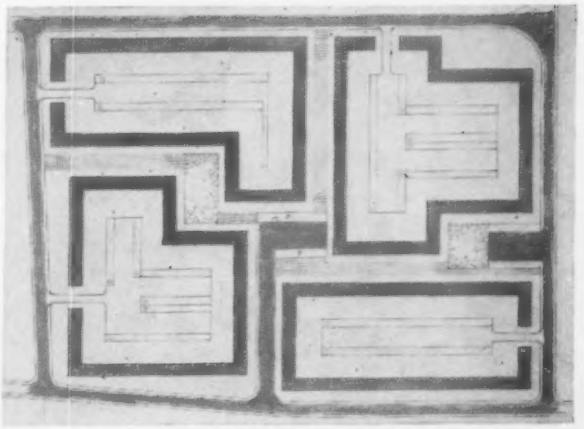
gain architecturally. The corner sky had been lost. Through roads were reduced to a reasonable minimum for adequate circulation and a sense of intimacy was achieved in many of the housing groups.

But the garage problem remained, and in tackling it one of the biggest advances has been made. So long as the ratio of garages to houses was about 1 to 5, sufficient garages could be provided in odd corners of the layout to avoid the necessity of special provision being made. This solution was most economical as no special road construction was involved. With the decision to plan for garages on a ratio of 1 to 2, the whole position changed. Casual provision was no longer possible; the garages had to be grouped in quite large courts and these occupied so much area that they became an important element in the housing layout. It was also obvious that for the convenience of car-owners these courts should be as near

4, garage court between the terraces of houses. This example is at Basildon new town.

to the houses they served as possible. The most obvious place to put the large garage court was between the terraces of houses, 4, with the immediate possibility that, in some cases at least, these courts could be used as vehicular access to the houses themselves.

Not every tenant, particularly those with young children, wishes to be dominated by the motor-car, either visually or from the point of view of road safety or noise. With vehicular access already provided at the rear for delivery of heavy goods, such as fuel, and the collection of refuse, a proportion of the roads at the fronts of the houses could be omitted and replaced with quiet pedestrian squares, green walkways or merely footpaths between front gardens. A diagrammatic layout of this type is shown in 5. It will be noticed that in this layout for 340 houses with 170 garages, 86 per cent of the houses abutt on through roads or are within 150 ft. of through roads (a distance normally considered as an acceptable 'carry' on orthodox road layout), and only 14 per cent of the houses are at a greater distance from the through roads, the maximum 'carry' in any case being 200 ft. In almost every case the rear service road is within about 50 ft. of the back of the house or flat.



5, diagrammatic housing layout showing rear-access principle. On a 20-acre site are 340 dwellings, half of which have garages placed between the terraces. 86 per cent of the houses are reached by less than 150 ft. of footpath.

This theoretical layout takes no account, of course, of the physical nature of the ground, or of existing trees or other features. The first practical experiment of this type at Basildon was begun in 1954: the Fryerns 8 area, briefly illustrated on the pages that follow. Its layout was frankly exploratory and does not cover a large area. Later developments of the same principle are also shown in plan and photographically on the following pages. In these a more urban atmosphere has been achieved by reducing the distance between the buildings and by the use of paving rather than grass.

The treatment of houses abutting on to main roads was mentioned earlier. By definition these roads must be wide for traffic reasons: they can be divided into two classes, where access can be permitted,

6, except when relieved by large trees, as here, two-storey housing is too small in scale for the wide roads it is often built along; hence the advantage of the more compact styles of layout exemplified on these pages.

as on the neighbourhood spine roads, and where no access can be permitted, as in the case of Class A roads. Even in the former, two-storey housing is too small in scale for a satisfactory treatment unless relieved by large trees, as in 6. The requirements of the local authority demand a minimum width between building lines of 84 ft. for a road of this class.

The 'no access' road presents a different problem, in which either the houses must back on to the main road and the gardens be screened by garages, as in the Harlow scheme (pages 200-202), or by planting; or, alternatively they must face the main road but be served by roads from the rear. If this latter solution is adopted, the rear access layout can offer many advantages—see the second of the two Basildon schemes (the Barstable area, page 198) and the Coventry scheme (pages 203-204). It must, however, be mentioned that the rear-access solution can cause difficulties unless the principles of this type of layout are fully understood before planning starts. Every effort must be made to encourage small tradesmen and visitors to use the front door of the house in order not to invade the privacy of the back garden. This can be done by restricting the maximum walk from a front road to say 250 ft. and providing adequate parking space at the junction of the front road and the footpath system. The provision of one parking-space to four or five houses is suggested.

A possible difficulty is the naming of streets and numbering of houses. One rear service-road will probably serve two or three front streets or footpaths. If each of these is given a separate name the signposting of the rear service-road will have to contain all these names, and the numbers of the houses served. And there may be a second service-road some distance away with the same names and different house-numbers. This can be confusing to tradesmen, ambulances or fire engines until experience has been gained of how the system works. These problems are, moreover, probably accentuated if front and rear access houses are embodied in the same scheme.

In conclusion it should be mentioned that it is easier to plan a house on a narrow frontage with the rear access layout. It is no longer necessary to provide for access to the dustbin, fuel store and possibly a back door or store on the front elevation, and this can result in a considerable gain in room-widths while achieving an economy in road frontage at the same time. Access is also given to the back of the house for gardening without going through it.

Six examples of Stevens's work, unearthed in Sheffield: 1, a Proserpine fire-grate. 2, brass fire-dogs designed to go with it. 3, iron grate and fender with brass rim. 4, plaster model for the same fender, 23½ in. by 4¾ in. 5, bronze door furniture. 6, one of two oval silver trays.

RICHARD SEDDON

ALFRED STEVENS AT SHEFFIELD

Alfred Stevens, on his return from the eight mysterious years he spent as a young man in Italy, when he acquired somewhere, and somehow, his superb skill and knowledge of stone carving, modelling, metal-casting and the ultimate refinements of the academic techniques of handling oil paint, was brought to Sheffield in April, 1850, by Young Mitchell, the first Principal of the newly-founded Sheffield College of Art, whose wife's portrait by Stevens is in the Tate Gallery (No. 1775).

Stevens found employment as a designer of ornamental castings at the iron works of Henry Hoole & Company Limited, where he had a studio from 1850 to 1852. Almost all Stevens's fire-grates, fenders, door-furniture, and similar things produced by this firm have been lost in the demolition of the houses in which they were used. The Victoria and Albert Museum has a small collection, notably the Proserpine fire-grate, 1, which was, until recently, the only known surviving specimen. None of his industrial design is among the Stevens material at the Tate Gallery, and the Stevens collection at the Walker Art Gallery, Liverpool, possesses none. This lends considerable interest to the examples I have found from time to time since 1948 in Sheffield.

My first discovery was a Proserpine fire-grate in perfect condition in the Lord Mayor's Reception Room at the Town Hall. In early press cuttings, I found mention of this as Stevens's fire-grate; but its authorship had become overlooked in recent years, and although it was regarded as of interest, it was not recognized for what it was. Since then, it has been moved into the custody of the Sheffield City Art Galleries. With this grate is a set of Stevens's brass fire-dogs, 2, which I have not seen elsewhere. They are illustrated in Hoole's handbook of their Stevens products in metal.*

*Notes on Some Works by Alfred Stevens (pp. 16-17).

Plenty became abundance when, on dining as a guest at the Sheffield Club (founded 1843) I observed another perfect Proserpine fire-grate in the Club dining-room. The Club, on learning of the importance of this example, have removed it from the dining-room to a small writing-room where it is preserved carefully, and is no longer plied with coal.

The third discovery of a Stevens fire-grate, 3, was made when I visited the office of the Corporation Public Works manager, which is at a Georgian house in Surrey Street in the row of old houses into which corporation departments have overflowed from the adjacent Town Hall. In his private office, a well-proportioned room on the first floor of the house, I saw a Stevens fire-grate, which is illustrated in Potter's *Notes* (page 8, fig. 2), of which the only other example I know is in the Victoria and Albert Museum. A unique feature of this example is that it is complete with a Stevens fender, in ornamental iron and brass, with reclining figures as shown in Potter's *Notes* (page 21).

So far as I know there is no other Stevens fender surviving. I sent a note on this fire-grate and fender to the Victoria and Albert Museum as of interest relative to their Stevens material; and they immediately borrowed the fender for exhibition with their own specimen of this fire-grate in the Alfred Stevens group in the 1952 exhibition of Victorian and Edwardian design which marked the Museum's centenary. A plaster detail of Stevens's model for the fender, 4, is in the National Gallery of Scotland. The grate and fender are still in place in the manager's office, under his personal care, and it is understood that if and when the Sheffield Central Replanning Scheme involves the demolition of the row of houses for street widening, this Stevens material will be offered to the Art Galleries of Sheffield.

In the same room, another unique surviving Stevens example is the complete set of door-furniture, 5, on the good mahogany door of the room, comprising door knob and upper and lower finger-plates, on both sides of the door.

A collection of Stevens material of great human interest came to my notice in 1951. I met Mr. A. E. Fielding, who stated that, many years ago, when a boy, he had served in Sheffield as apprentice to a successor to Alfred Stevens at Hoole's Green Lane Works. His master, on taking over Stevens's studio, threw out an accumulation of fragments of modelling, and cast-iron prototypes for details of decorative iron-work and similar material. The apprentice obtained his master's permission to take home a bucketful of these, which in 1951 he still possessed.

Among these are the iron prototype casting of the door-knob designed for the dining room of Dorchester House, the prototype casting for the finial of the iron fire-dogs shown at the Great Exhibition of 1862, a water-colour for the painted wooden chimney-piece done in 1851 for Mr. Young Mitchell's house at Meersbrook, Sheffield (now at the Fitzwilliam Museum, Cambridge), and a medallion, with a classical head in profile, modelled one evening when Stevens visited the Sheffield College of Art.

Another discovery concerns Stevens's work in silver. I consulted, through the courtesy of Mr. Senior Atkin, the *Numbers Book* of Messrs. Thomas Bradbury & Sons, Sheffield. This book registered the designs for silver created for the firm, and contains an entry describing Stevens's designs for a 'Florentine Tray.' It states:

'(1856)

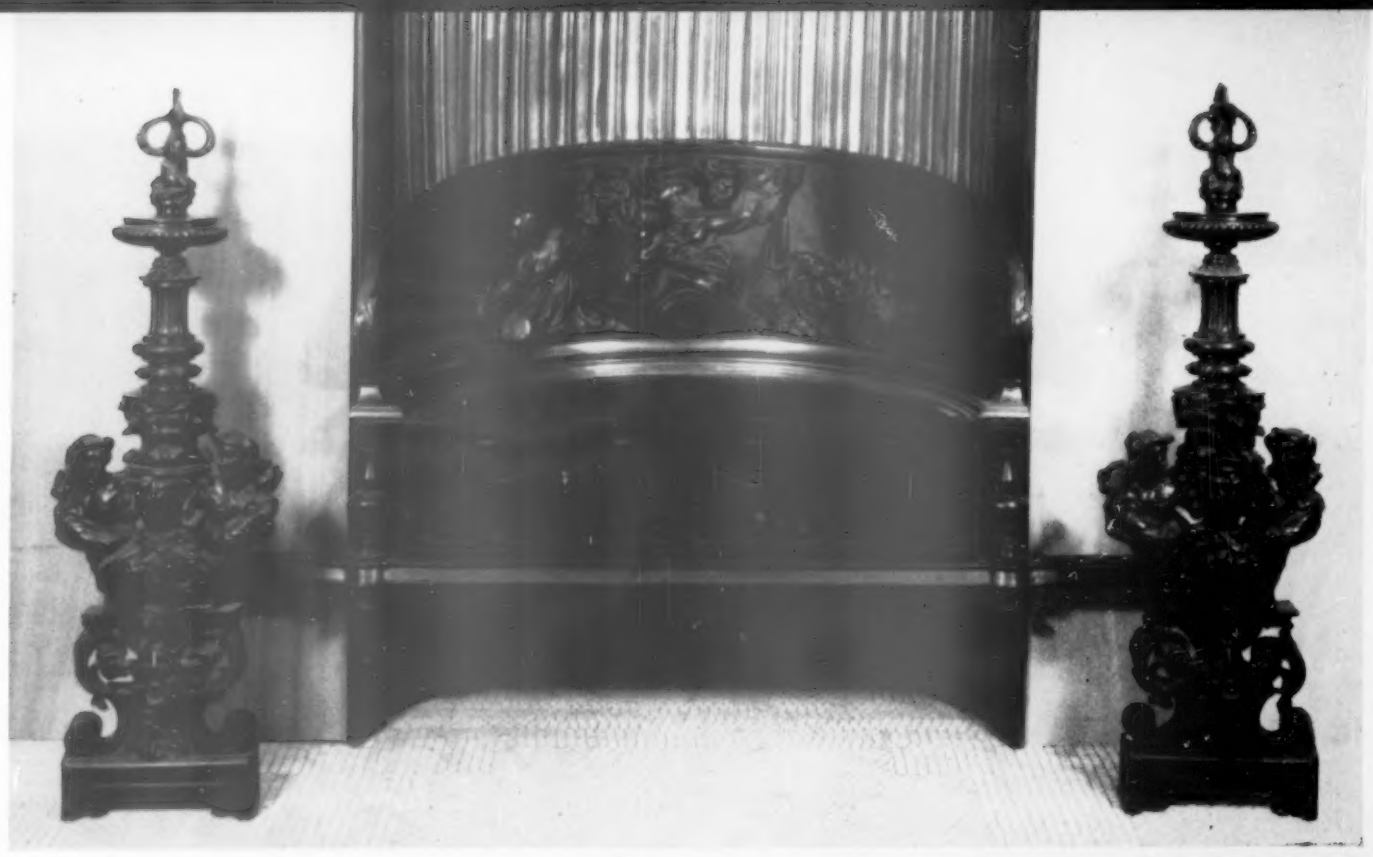
5909. *Waiter* 30 *In oval cast, A.S.'s Florentine Pattrn 6 sections, with Figures, Masques and ornaments* (*Registered October 23rd.* 1856) *Eng. Centre, Thompson Pattrn*

20/–/– *Decr* 1890.'

Stevens designed silver from time to time between 1850 and 1856 for Bradbury's. This waiter or oval tray, with baluster rim, stood on four cast feet, and had scroll-end handles. The firm possessed no surviving specimens; but, after long investigation and inquiries in many quarters, I ran to earth two examples of different sizes (one of which is shown in 6), through an article in the *Journal of the Hunter Archæological Society* (Vol. VI, Part I, Oct. 1944).

Both were for sale in a silversmith's shop in Glasgow; they were of silver-plated nickel, oval in shape, one being 24 inches long (not including the handles) and the smaller 19 inches long—both in perfect condition. Each has a cast and pierced swage and scroll-end handles, and the oval plate is, in both instances, engraved by another hand than Stevens's; the whole set on four cast feet designed by Stevens. The models for the scroll-end handles and feet were designed and produced by Stevens; and the brass (or similar alloy) prototypes for the ornamental rim have been in Sheffield City Museum for some years. There is reason to believe that Stevens understood this design to be intended for execution in solid silver, which was not to be; at least in the two examples I found.

It is fortunate that Sheffield possesses the correspondence between Stevens and Joseph Bradbury upon the designing of the tray in silver; the only occasion I know when Stevens's treatment of one of his many media was questioned by technicians, and then only on the grounds of the great expense. They both appeared in the Alfred Stevens section of the Victoria and Albert Museum Centenary Exhibition—'*Victorian and Edwardian Decorative Arts*,' but were declined in 1951, when brought to the attention of Sheffield City Museum. The smaller is now in the National Collection of the Victoria and Albert Museum (Circ.40—1952) and the larger in the Walker Art Gallery, Liverpool.



1

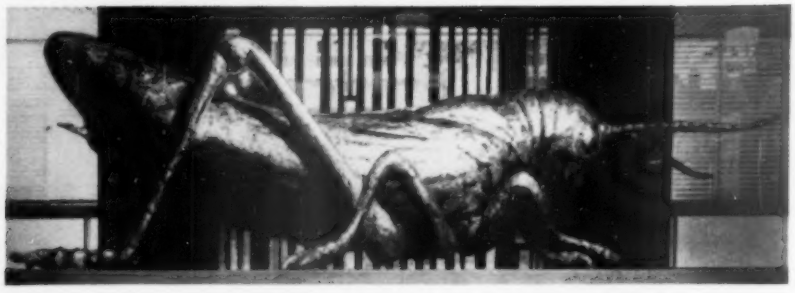
2

3

5

4

6



1

Bank in Castrol House

architects : Sir Hugh Casson, Neville Conder and Partners; partner-in-charge : Ronald Green.

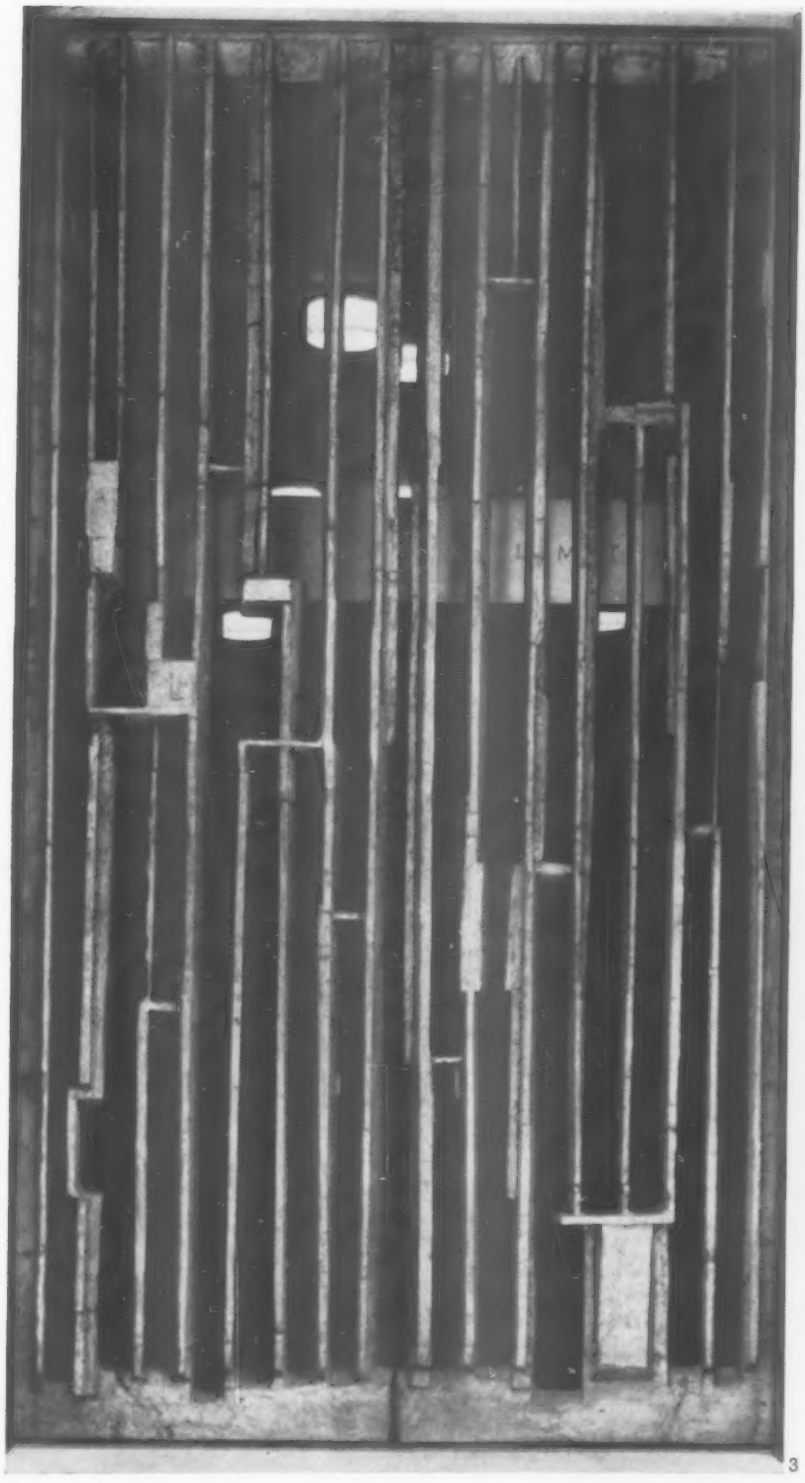
This, most recent, addition to the distinguished series of new bank-branches commissioned by Martins, is located on a corner site in the low block of Castrol House, Marylebone Road, London (the main building was described in AR, March 1960). In spite of its corner site, it departs from the worn-out banking tradition of the corner entrance, which would have been structurally difficult in this instance, and no longer makes commercial or functional sense. Instead, the entrance is placed centrally on the main front, and is given due importance by its architectural and sculptural treatment, as these pages show.

1, the silver-leafed grass-hopper, the traditional house-mark of Martins (this is a thirty-year-old example, refurbished) directly facing the entrance at the end of the banking counter.

2, cast aluminium push-plate, designed by the sculptor Geoffrey Clarke, on one of the inner glass doors. At the

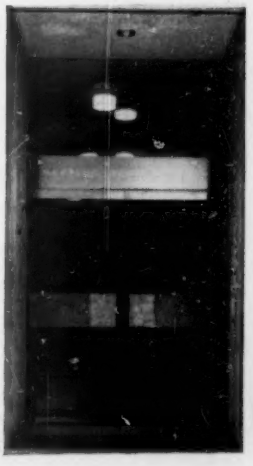
2

ID
a monthly review of interior design



3

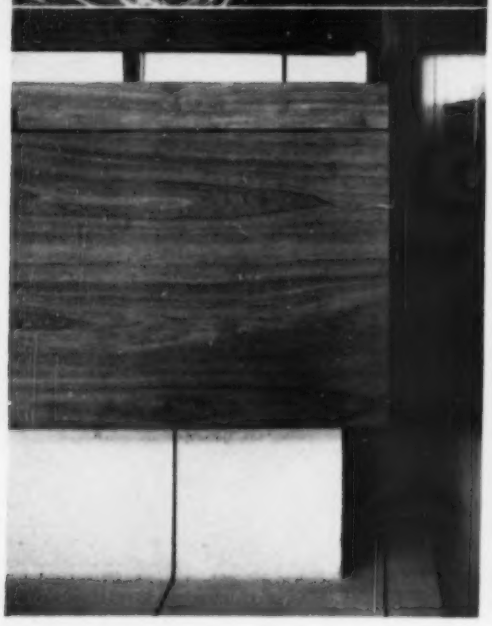
4



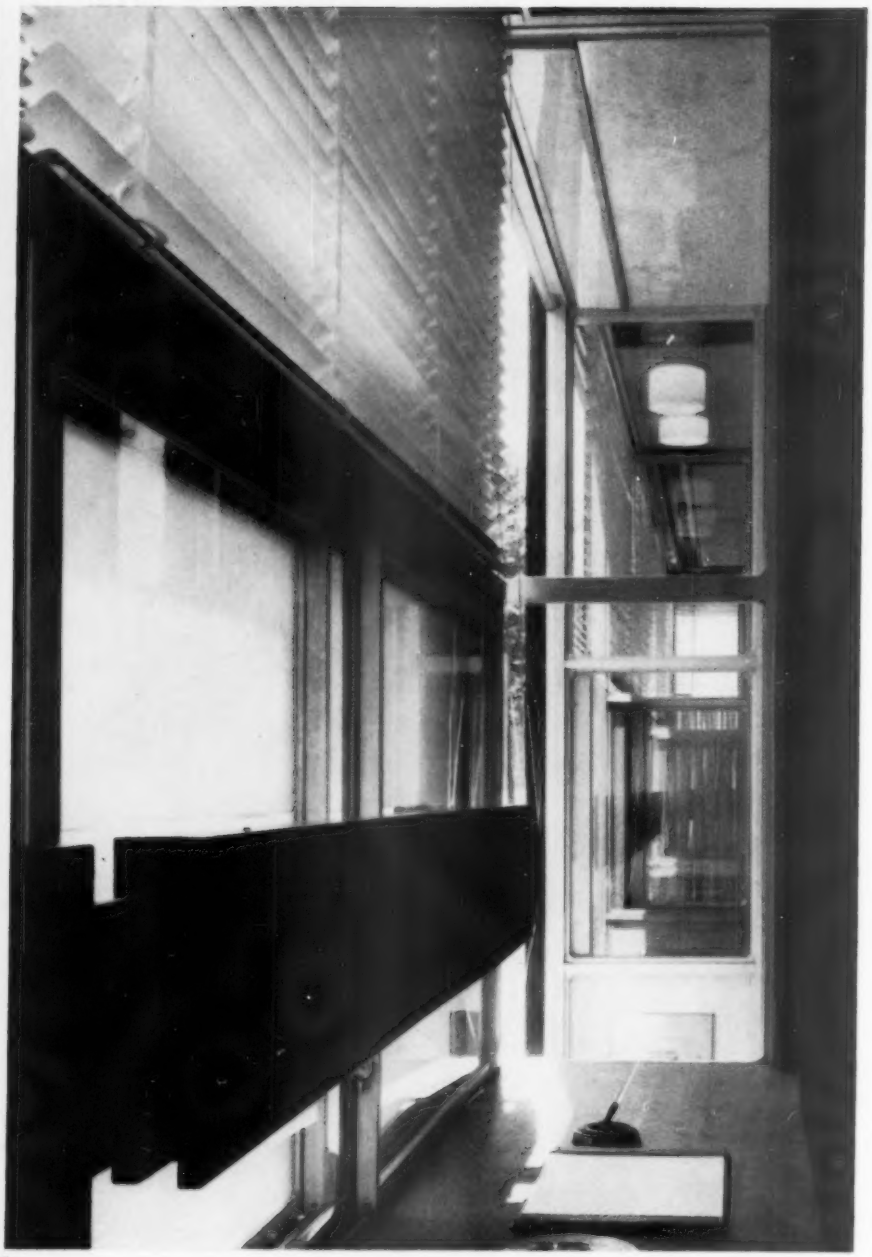
5

left is seen part of the outer security doors, also sandcast in solid aluminium by Geoffrey Clarke. In 3 they are seen in the closed position, when they form a single sculptural grille.
4, the door-complex, seen from the enquiry desk, showing the relationship of the inner and outer doors, and the recessing of the flank-walls to accommodate the outer doors when in the open position.
5, the complete doorway seen from outside. It occupies one standard bay of the façade grid, but stands back from the façade by the depth of the inward link of the curtain walling which divides all interior partitions from the outer wall (see 8, over page).

6



7



8

Bank in Castrol House

6, continuous cove to basement floor, made by bending thermo-plastic tiles under heat. Together with the skirting strip above, this serves to prevent scuffing and staining of wall surfaces by mechanical polishers.

7, one end of the island banking counter—a teak superstructure on a base which is an upward extension of the white terrazzo floor.

8, looking along the vision-strip formed by the inward link of the curtain walling. A standard writing surface exactly fills the depth of this strip in all public areas. The solid black bar is an illuminated sign which is seen from outside through a strip of unobscured glass in the double-glazed windows.

9, a general view of the banking area.

9

1

Children's Library in Churchill Gardens, Pimlico

architects: Powell and Moya; assistants, Robert Middleton and J. A. Griffiths.

Occupying two of the ground-floor bays provided for shops in one of the Lupus Street blocks of the Churchill Gardens development, Pimlico (AR, August, 1954) this small branch library offers 'out-of-school-hours' service to the children of families living in, and near, the new development.

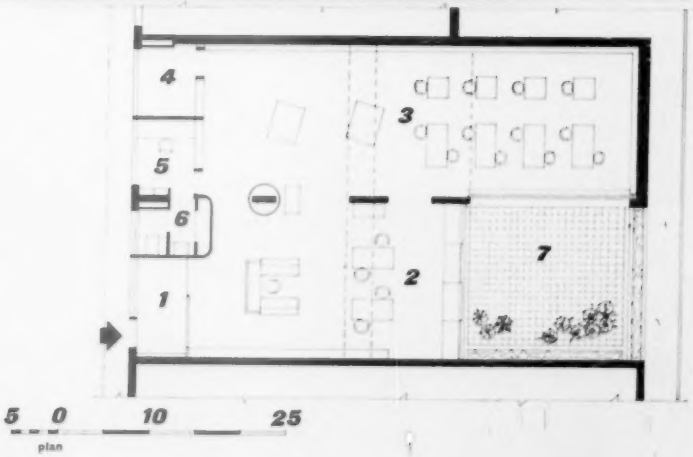
1, clerestory lighting (under edge of main structure above), matt-finish, tongue-and-grooved, boarded deal ceiling, and top of map-column—one of the rectangular structural columns of the main block, encased in a fibrous-plastered, expanded-metal cylinder papered with a map of London.

2, general view looking toward the entrance end from the story-telling area, with the paved garden court on the left.

3, the street front, with the entrance at the nearer (left-hand) end.

2

3



key
1, entrance from street
2, reading area
3, story-telling area
4, chair store
5, staff room
6, staff lavatory
7, paved court

4

4. movable book trolley designed by the architects—the frame of square steel tubes carries mahogany shelves, and moves on large diameter casters, one of which at each end can be locked with a brake such as that seen in the foreground.

5. the paved court from the story-telling area—the open space is about half the standard 'back-yard' area that would normally be provided for two bays of the frame, the other half having been incorporated into the enclosed volume in order to give sufficient floor area within two bays' width. External paving is brick; internal flooring is maple strip; book-cases are African hardwood.

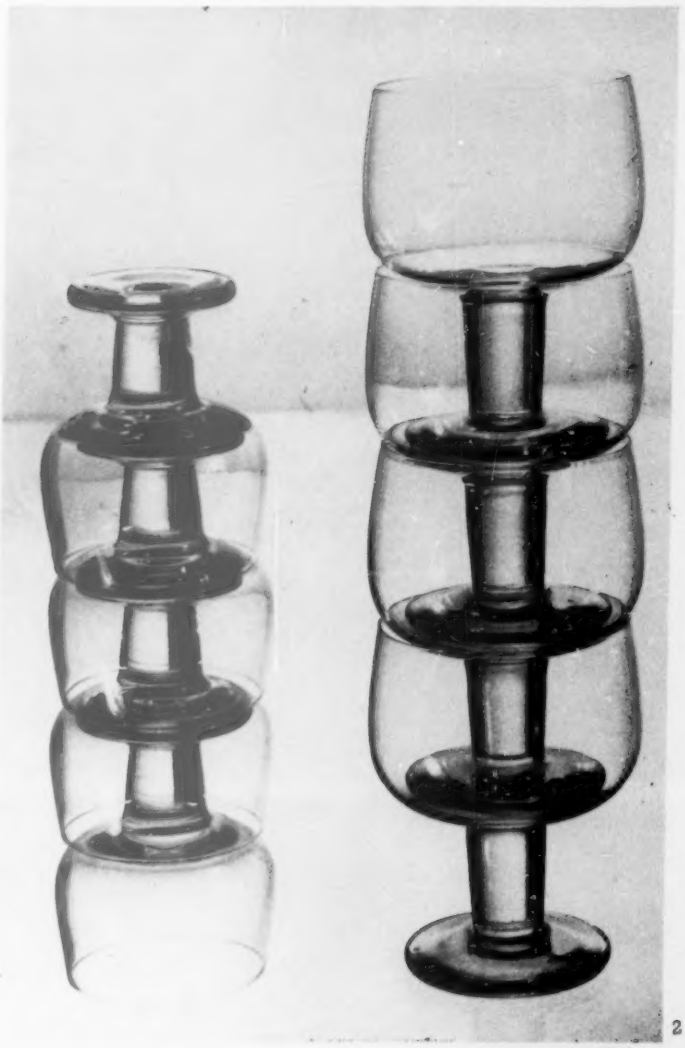
6. upholstered seat under window of reading area—the back is of hardwood, and a concealed run of heating grilles between the seat and the glass protects sitters against cold down-draughts in winter.

Children's Library in Pimlico

5

6

1



2

glass as a substantial material

Some ingrained prejudice or ancient snobbery in Western culture insists that glass should be—as far as possible—a non-existent material. In architecture only its transparency or reflectivity are prized, not its material qualities, while in smaller objects it is always the fine-ness, thin-ness and general invisibility of the metal that have been admired. More recently, under the influence of Murano and Orrefors, a degree of massiveness has been accepted in glass-ware to be looked at, glass-ware as a branch of gallery sculpture, but only in the past two or three years has massiveness and emphasis on material qualities been acceptable in glass to be used, glass to be handled. The most full-blooded examples of this trend are seen on this page, designed by Hans Hendriksen and manufactured by Kastrup Glasværk.

1, *stacking tumblers, the least unfamiliar of the Hendriksen shapes.* ***2,*** *stacking wine-glasses and goblets —quite apart from the visual and tactile qualities of the heavy bases and stems, the weight of glass they contain makes a better-balanced glass for stacking, even when the foot is smaller in diameter than the bowl.*

3, *and* ***4,*** *the complete set of glass designed by Hendriksen also includes decanters, 3, water-jugs, 4, and bowls and fruit dishes in substantially the same idiom as the glasses. Although designed some time ago, they have only recently come into production, and some, if not all, of the pieces will be available in Britain through Danasco.*

3

4

DR
design review

1

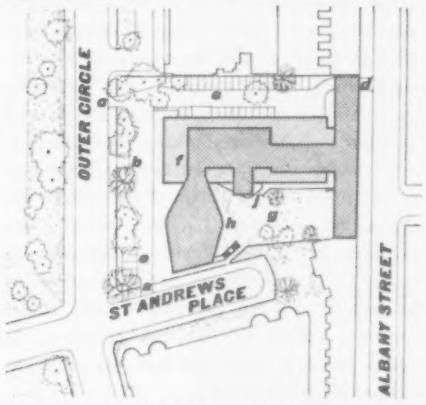
2

Model of the new headquarters building for the Royal College of Physicians in Regents Park, London, on which work is expected to start at the beginning of next year. 1, looking down St. Andrew's Place, with the Long Room windows seen above the single-storey lecture-hall. 2, from across the Outer Circle, with the main entrance in the centre and the wall of the library projecting over it.

ROYAL COLLEGE OF PHYSICIANS, REGENT'S PARK

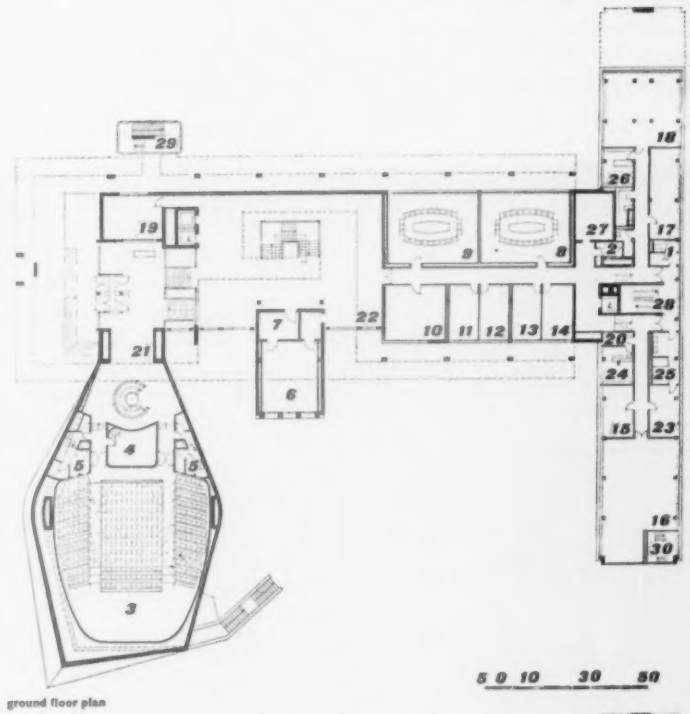
ARCHITECTS | **DENYS LASDUN AND PARTNERS**

This is to replace the present College premises at the corner of Trafalgar Square and Pall Mall East, a building by Smirke which is to be taken over by the Canadian government. The new site is that of Someries House, at the south-east corner of Regent's Park, designed by Nash but much altered since. Both in the Gorell Report of 1947 and in Government statements about the future of the Nash terraces last year, it was agreed that Someries House need not be preserved, but could suitably be replaced by a new building. The significance therefore of Mr. Lasdun's project is that it shows how a sensitively designed modern building can take its place as part of the architectural landscape devised by Nash as long as its height, scale and colouring conform.



key a, main entrance for vehicles. b, main entrance for pedestrians. c, main exit for vehicles. d, service entrance. e, parking area (approx. 40 cars). f, main entrance to building. g, garden court. h, lecture hall. j, pool

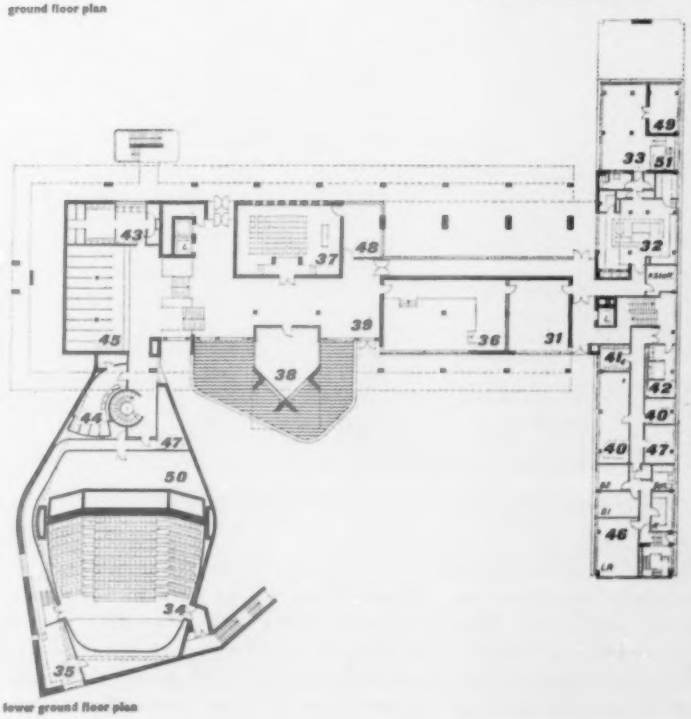
The building provides accommodation for the College library of historical books, and also includes lecture-halls, committee-rooms, assembly - rooms, dining - rooms, common - rooms and offices for secretarial staff. It is four storeys high and is planned so that the principal rooms are grouped round a garden on the south side, partly enclosed by the projecting lecture-hall. Something of a collegiate character is thus aimed at, expressing the function of the building. Care has been taken to enhance the vista along St. Andrew's Place, a cul-de-sac road off the Outer Circle, and to preserve its atmosphere. The Albany Street elevation is conceived as simple street architecture.



ground floor plan

key
ground floor
1. lavatory for caterer's staff—female.
2. small servery.
3. main lecture theatre (upper part).
4. lecture theatre—projection suite.
5. lecture theatre—translation suite.
6. censor's room.
7. ante room to censor's room.
8. council room.
9. large committee room.
10. president's office.
11. registrar's office.
12. treasurer's office.
13. assistant registrar's office.
14. secretary's office.
15. assistant secretary's office.
16. typing pool.
17. accounts office.
18. working room for post, etc.
19. MRCP office.
20. telephonist.
21. entrance hall.
22. main staircase, hall and waiting space.
23. staff rest room.
24. locker space for female staff.
25. lavatory for female staff.
26. storage for filing.
27. strong room.
28. staff staircase.
29. escape staircase from library.
30. escape staircase from president's flat.

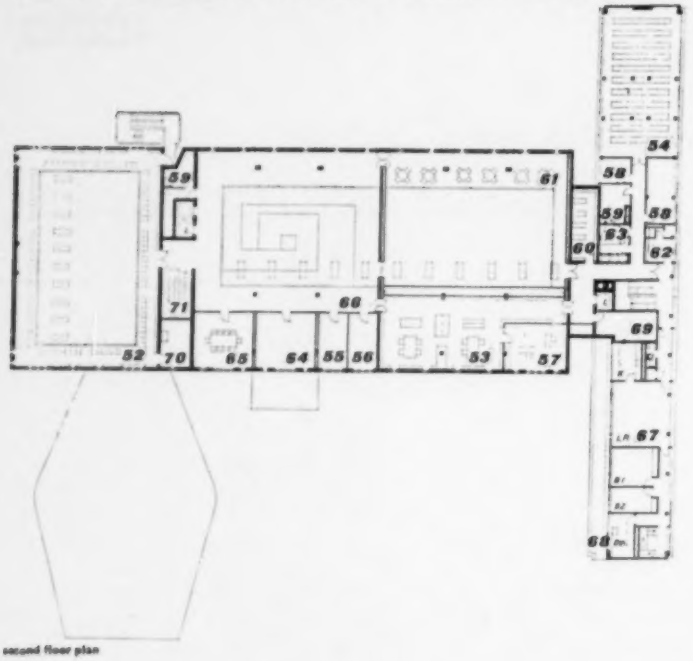
5 0 10 30 50



lower ground floor plan

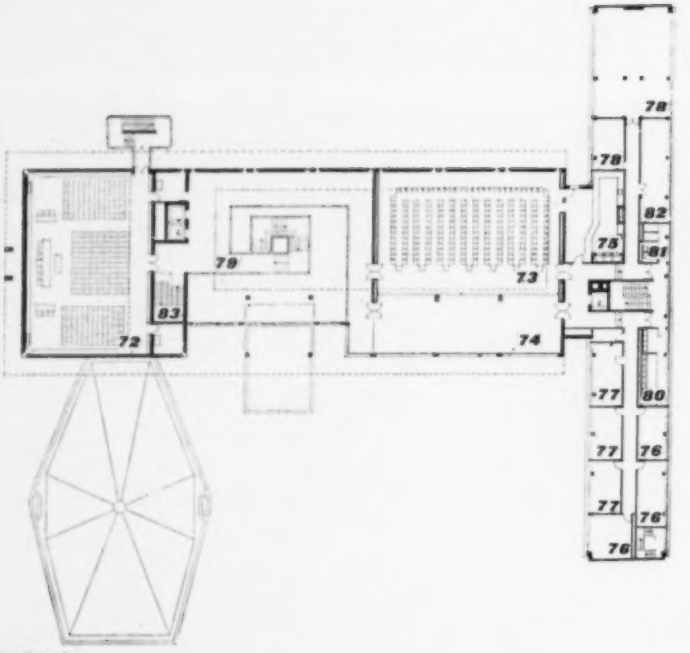
lower ground floor
31. secretaries' dining room.
32. kitchen.
33. kitchen yard.
34. main lecture theatre.
35. lecture theatre—preparation room.
36. common room for fellows and members.
37. small lecture theatre.
38. quiet room.
39. lower hall.
40. porters' rooms.
41. locker space for male staff.
42. lavatory for male staff.
43. lavatory for male fellows.
44. lavatory for female fellows.
45. cloakroom.
46. flat for head porter.
47. general storage.
48. storage for chairs.
49. transformer chamber.
50. ventilation plant room and extract chamber—main lecture theatre.
51. escape staircase from boiler room.

ROYAL COLLEGE OF PHYSICIANS, REGENT'S PARK



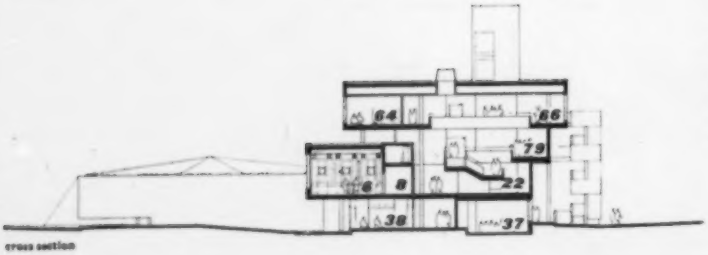
second floor plan

second floor
52, library—gallery.
53, reading room.
54, stack rooms for books.
55, Harveian librarian's office.
56, librarian's office.
57, library general office.
58, room for photography and repair of books.
59, library storage.
60, library strong room.
61, dining room—gallery.
62, lavatory for caterer's staff—male.
63, small servery.
64, sitting room for fellows only.
65, small committee room.
66, upper picture gallery and hall.
67, flat for president.
68, terrace for president's flat.
69, storage for pictures.
70, storage for chairs.
71, main staircase.



first floor plan

first floor
72, library—main floor.
73, dining room—main floor.
74, long room.
75, dining room servery.
76, three small rooms.
77, three professors' rooms.
78, additional office space.
79, staircase, hall and picture gallery.
80, lavatory for male fellows.
81, lavatory for female fellows.
82, storage for chairs and tables.
83, main staircase to second floor.



cross section

cross section
6, censor's room.
8, ante room to censor's room.
22, main staircase hall and waiting space.
37, small lecture theatre.
38, quiet room.
64, sitting room for fellows only.
66, upper picture gallery and hall.

The building has a reinforced concrete structure, the upper floors and columns of which will be faced with ivory-coloured vitreous mosaic. The lower floors, the main lecture-hall and the rear part of the building along Albany Street, will be faced with dark blue Baggeridge facing bricks. The colours of these facing materials have been chosen to identify and harmonize the building with the cream-painted stucco and slate roofs of the Nash terraces. The main entrance is at the west end facing Regent's Park. Cars will approach from St. Andrew's Place past the lecture-hall, the facade of which will appear as a high raked garden wall leading in to the entrance.

The College library is on the upper floors immediately over the main entrance, and is reached by way of the main staircase which rises from a hall in the centre of the building. Portraits from the College collection will hang on the walls of the surrounding galleries. The library will contain the important collection of historical books which was started by the College after the Great Fire of London. Meetings will also be held in the library, and the room will then be able to accommodate 400 people. Facing the library, at the head of the main staircase, is the dining-room for over 200. This also may be used for lectures and meetings, when it will hold 350. Separated from the dining-room by a hydraulically operated movable partition and looking out over the garden is the 'Long Room' which will be used for receptions and committee meetings.

Both the library and the dining-room are two floors high, with galleries at the upper level. To avoid deep overhangs within the rooms, these galleries have been projected outwards, giving the building its stepped section. This is reflected in the central circulation space which grows upwards and outwards from the main staircase. Opposite the foot of this staircase, also overlooking the garden, is the 'Censor's room,' used for meetings and examinations. It will be lined with the original Spanish Oak panelling which was part of the building in Warwick Lane designed for the College by Wren, and was moved to the present College building in 1825. The room is symbolic of the long history of the College and has, therefore, been placed at the heart of the new building.

Beyond the Censor's room to the east are the principal officers' rooms and the main committee and council rooms, and beyond them again, in the part of the building fronting on to Albany Street, are the secretarial offices. The top floor is mainly occupied by library offices, bookstacks and a reading-room.

Running south from the entrance foyer towards St. Andrew's Place is the main lecture-hall, which will hold 300. It has a stepped floor and will be equipped for showing films and slides. There will be soundproof booths for five translators at the back of the hall. The roof will be covered with copper. On the lower ground floor at garden level will be a smaller lecture-room holding approximately 50 people. Facing the garden at this level are also the staff dining-room and common-rooms for members and Fellows. There will be direct access between the main lecture-hall and the cloakroom accommodation beneath so that the lecture-hall can be sub-let as a self-contained unit.

OFFICE BUILDING, MANCHESTER SQUARE, LONDON

ARCHITECTS: GOLLINS, MELVIN, WARD AND PARTNERS

In the north-west corner of the square, comprising two blocks, six and eight storeys high. The L-shaped plan lent itself to centralizing all the main circulation and service areas, and made possible a link between the two blocks where a change of fenestration takes place. The eight-storey block was envisaged as a complete building, and the external column and wall treatment is returned into the building to emphasize this. The link between this and the six-storey block has been achieved by setting the lobbies back from the clear glass wall, which rises above the main entrance. The existing elevation to No. 15 Manchester Square was extended to meet the LCC town-planning requirements, which called for a 'completed' frontage.

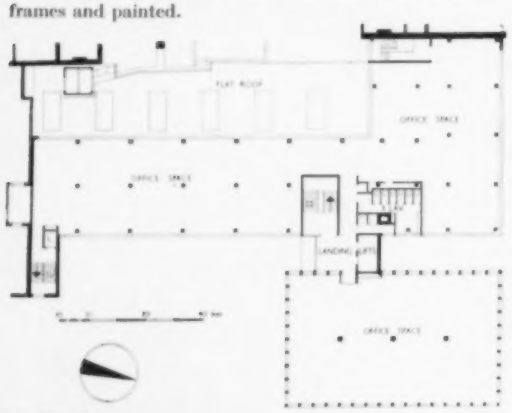
Clerestory lighting is introduced into the basement office by dropping the roof-slab over the front area. The

1, *east elevation of six-storey block, with eight-storey block on right.*

cantilevered entrance bridge is 3 ft. clear of this roof, which is tanked for use as an ornamental pool 80 ft. long by 10 ft. wide extending beneath the bridge to the line of the main entrance. Provision has been made for continuous submersible fluorescent lighting along the front edge. The lower front area is laid out as a formal garden, at the foot of the circular escape staircase.

A difference in level between Manchester Square and the mews at the back enables cars to run direct into the basement garage. In the upper office floors only 13 per cent of the total floor area is occupied by circulation, including lifts, lavatories and main and escape stairs. The top floor of the eight-storey block is recessed, providing directors with a terrace, entered through a full height glazed wall comprised of sliding doors and sashes.

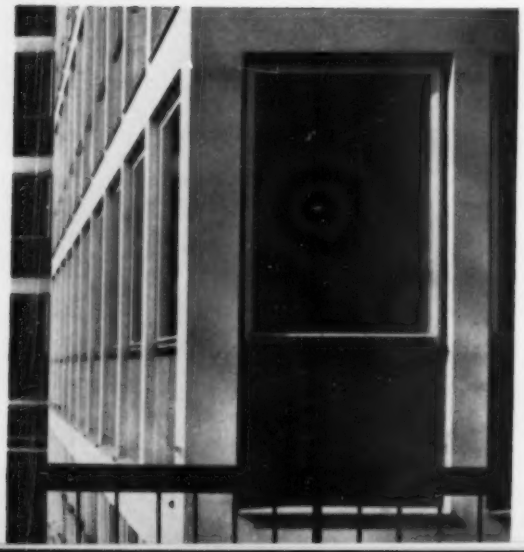
The building has a framed flat-slab reinforced concrete structure with hollow pot floors. Spandril walls are concrete clad with brickwork between steel channel mullions. In the eight-storey block floors are supported at the perimeter on concrete mullions and spandril walls are faced with grey granite slabs. Columns are faced with Portland stone. Windows are mounted in hardwood subframes and painted.



upper floor plan

2

2, distant view from Manchester Square.
3, detail of window of eight-storey block.
4, the completely-glazed link between the six- and eight-storey blocks, with the main entrance on the ground floor.



3

4

SERVICES BUILDINGS, LONDON ZOO

ARCHITECT: F. A. STENGELHOFEN

Consultant: Sir Hugh Casson;
Assistant in charge: D. I. Bathgate

A group of buildings designed to accommodate the various services connected with the running of the Zoo. They face the Outer Circle at the back of the Mappin Terraces, an area which is not suitable for displaying animals. The first buildings of the group to be built were the boiler-house and incinerator (the former supplying high-pressure hot water throughout the grounds in insulated ducts, and the latter designed to burn 18-20 cubic yards of refuse in one day, and also used for the destruction of animal carcases by means of four gas burners) and the hospital and quarantine station containing animal dens, food preparation rooms, operating theatre, X-ray room, high temperature animal rooms, post-mortem department and offices.

The most recently constructed buildings of the group illustrated here, are:

The Works Department, built to house the Society's maintenance staff who, under the Clerk of Works, carry out general repairs, special constructional work and small works in the grounds. The accommodation consists of woodworking, metalworking and paint shops, administration offices, stores and mess room facilities.

5

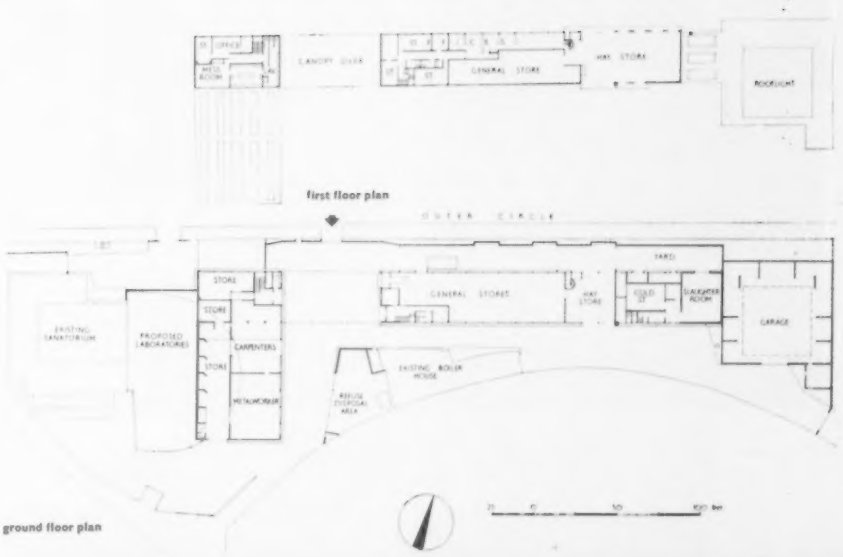
5, view from the Outer Circle. 6, the Supplies Department from the south; the general stores are behind the louvres.

The Supplies Department, which deals with animal feeding stuffs and general stores required throughout the grounds. The building contains facilities for storing 'packed' and 'sacked' food stuffs, the preparation of special foods and storage and preparation of meat, having large refrigerators for storing meat and fish and a slaughter-house for animal feeding; also a large hay store, mess room accommodation for staff and offices for running the department, together with offices for the transport executive, the Society's engraver and the architect's department.

The garage, formed by converting what used to be the pony stables, which had been designed with this in mind. The building will house the Society's vehicles, trailers and trucks.

The last building, to complete the group, and soon to be constructed between the Hospital and Quarantine Station and the Works Department, will contain Research Laboratories.

The Works Department and Supply Department



6

7

8

Services buildings, London Zoo

building, which forms the largest part of this development, is a precast concrete structure with precast concrete slabs with in-situ topping. The internal partitions and external panel cavity walls are of brick. Windows are aluminium. There is a 60 ft. span covered way between the two departments, which forms the entrance to the whole area. This is constructed of tubular steel space frames supporting an aluminium roof.

7, *detail of the tubular space frame supporting the aluminium roof of the covered way between the Works Department and Supplies Department, shown in* 8.

OFFICE BUILDING, BOURNEMOUTH

ARCHITECTS: FARMER & DARK

Partner in charge, Edward Butcher; assistants, Ian Case and Trevor Kidd

For Max Factor & Co., on a site to the west of the company's old offices, adjoining a golf course. The office space is planned round the perimeter of the building, with all stores and services in an artificially lit and ventilated central core. The building is designed on a 40 in. module.

10

9, *view from the approach road.* 10, *zinc-covered roof structure housing water tanks and air-conditioning plant.*

9

Drawing by Eric Thomas

WPM

MORTIMER STREET

A place for Wallpaper

THE FOLLOWING COLLECTIONS
ARE AVAILABLE FOR ARCHITECTS CONCERNED WITH THE
SPECIFICATION OR DIRECTION OF
DECORATIVE SCHEMES

PALLADIO, HAYWARD, THE ARCHITECTS BOOK

AND MAY BE SEEN AT

The Architects' Department The Wall Paper Manufacturers Limited
19/21 Mortimer Street London W 1
or King's House King Street West Manchester 3

Alright; so it's a wonderful building. I can see that. (But I bet it's more fun outside.) And it's a wonderful floor—TRINASCOLIN linoleum flooring by Limmer & Trinidad. I *know* that. (But I *still* bet it's more fun outside). Oh, come *on* . . .

Craftsman-installed TRINASCOLIN produces a colourful and resilient floor that is easily maintained. It's the 'modern' flooring, available in several thicknesses and a variety of plain and marbled colours.

The Limmer & Trinidad Group of Companies are specialists in all types of Decorative and Industrial flooring and have unique technical and practical experience to offer.

Descriptive leaflets are available on request.

THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242 Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

MEMBERS OF THE

LIMMER & TRINIDAD

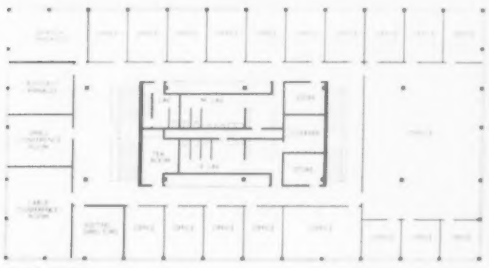
GROUP OF COMPANIES

Office building, Bournemouth

Office partitions are demountable and interchangeable. Corridor ceilings are lowered to contain ventilation ducts. The main entrance lobby opens into a reception and staircase hall, adjoining which is a glazed waiting space with sliding doors opening on to a covered terrace, with a fountain and pool. There are also three small waiting and interview rooms.

The building is concrete framed, into which are set aluminium wall frames, glazed or with solid panels faced with either blue-black Eternit or with silicon grey aluminium. The opening windows are flush with the face of the concrete column, and either side of them are fixed glazed and solid panels set back 4 in. The columns are capped by a precast concrete fascia with a diamond pattern cast into the face. Ground floor walls are faced with Wessex bricks or blue glass mosaic.

The staircase, of terrazzo, is cantilevered from a brick wall. The floor of the staircase hall is random marble slabs. All woodwork is natural parana pine or afrormosia



first floor plan

ground floor plan

11

12

13

14

11, *the entrance hall on the ground floor.*
12, *the free-standing boiler-house flue.*
13, *typical first floor corridor.*
14, *glazed demountable office partitions on the first floor.*

EXHIBITIONS

PAINTING AND SCULPTURE

The LCC, persisting in its policy of neutrality, and aided and abetted by the usual group of ill-assorted 'specialists' nominated by the Royal Academy, the Royal Society of British Sculptors, the Arts Council and the ICA, has staged another fun-fair of sculpture at Battersea Park. Mr. Philip James, writing in the catalogue, excuses it in the name of democracy. His argument is horribly familiar: 'Committee art spells compromise, and compromise is part of the price that must be paid when the patronage of art passes from private hands to public bodies.' It isn't. The LCC could appoint a Director.

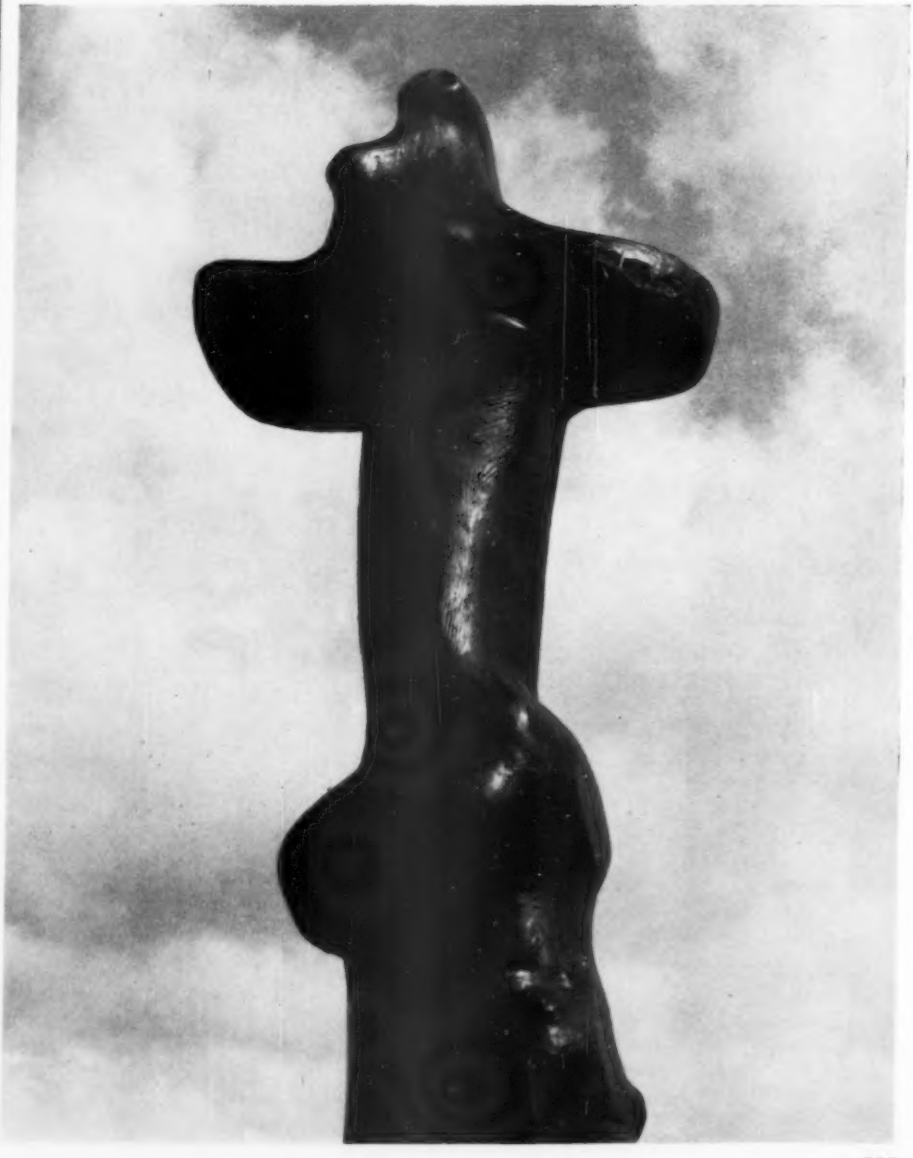
One sculpture, Henry Moore's 'Glenkiln Cross,' 1, taller than the rest, literally rose above the confusion. No 'specialist' should try to take credit for 'choosing' it, for it didn't save the show. It is 11 ft. high, and, as 2 suggests, when one looked up at the figure it was *above* the show, not *in* it. It stood apart and aloof, estranged by its tallness and its incomparable grandeur.

The Glenkiln Cross seems to me to be at least the equal of the greatest of Moore's pre-war stone carvings, and probably the finest monumental bronze sculpture made in this century. It gets its name from Glenkiln Farm at Shawhead in Scotland, where the first cast stands. Moore says that it is 'meant to be a rudimentary worn-down cross—the cross and the figure on the cross being merged together,' but I do not think he really means to imply that he started to make this piece of sculpture with ideas about a crucifixion in mind; I think he is simply telling us what the finished work suggests to him. The tall, squarish pillar which lifts the modelled figure into the air brilliantly solves the problem of the sculpture base. It is itself an abstract sculpture, and in this sense the Glenkiln Cross is in line with other recent sculptures in which Moore is putting organic and abstract forms into an intimate relationship. But I think that if Moore had had a kind of crucifixion in mind when working on the Glenkiln Cross the idea would have compelled him to effect a more drastic interpenetration of figure and pillar. As it is, I do not think I have ever seen a more perfect relationship between a statue and its pedestal.

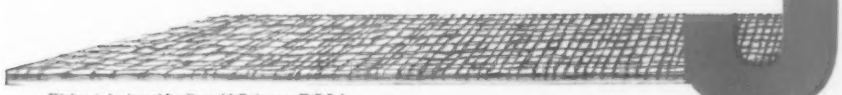
Moore's preoccupation with a torso-like mass is evident in several recent bronzes (his armless 'Woman' in the Marlborough Gallery's summer show is another superb example), and anything but short thick appendages would weaken the conception of a single, self-sufficient mass. So the protuberances near the top of the figure, from which the notion of a cross-piece arises, are vestigial arms which have become identified with the torso.

I would not wish the Glenkiln Cross to be given another name. Its Celtic ring seems singularly appropriate. But I have to admit (with pleasure and relief) that this wonderful bronze does not contain for me the intimations of a crucifixion which Moore himself finds in it. It seems to be quite free from ideas about suffering, sacrifice, death or life after death, and although in a different social climate it could arouse reverence or veneration or even fear, it is first and foremost a monu-

1



2



Fishnet designed by Ronald Grierson F.S.I.A.

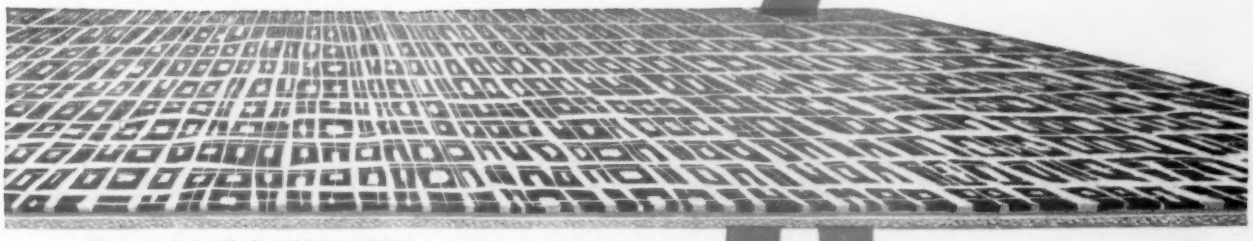
BRĪ-NYLON

Shildon

— the carpet of the future

TODAY!

1960



Townscape designed by Ronald Grierson F.S.I.A.

Architects, Designers and Furnishing Contractors who keep abreast of the times specify Shildon—the world's most advanced carpet.

Intensive research and development have resulted in the perfect Nylon carpet. Almost every leading store in this country has tested the wearing and other qualities of Shildon carpets to their satisfaction. For instance, more than two million pairs of feet failed to wear out a Shildon carpet in a leading Manchester store. Quality plus the best design features and the most modern production methods have gained recognition for Shildon carpet as a product in keeping with the finest traditions of the British carpet industry.

Shildon carpet comes in exciting new designs, rich colours, and with its own foam rubber underlay. And Shildon is washable and stain resistant too, which means that the carpeting will always retain its beautiful look and luxurious feel. Yet all this luxury costs (including underlay) no more than ordinary carpet. This is why more and more Architects, Designers and Contractors include BRI-NYLON Shildon carpets when planning floor coverings.

BRĪ-NYLON Shildon CARPETS

Expert advice on any carpet problem is always available. Designs can be planned to your specification.
You are also invited to visit the BRI-NYLON Shildon Carpet Centre at 60 Berners Street, London, W.1.
Tel: LANgham 0471

BRĪ-NYLON *is the Registered Trade Mark of British Nylon Spinners Limited*

THE ALFRED MORRIS GROUP OF COMPANIES AM

The ceiling that lights

A Lumenated Module installation in the showroom of Middlesex Motors, Stanmore. ARCHITECTS: *Tubbs, Duncan & Osborn,* A.R.I.B.A.

Lumenated Ceilings are precision made. They arrive on site ready for immediate erection — using a minimum of skilled labour. They are covered by a comprehensive guarantee and a full maintenance service is provided. Expert co-operation on design and installation can be given by our experienced staff. Most Lumenated Ceilings diffuser designs have been accepted by the Council of Industrial Design. Please write for full details.

LUMENATED CEILINGS LIMITED

A member of the Hall-Thermotank Group.

ALLIANCE HOUSE, CAXTON STREET, LONDON SW1. TELEPHONE ABBEY 7113

TGA 1.85

3

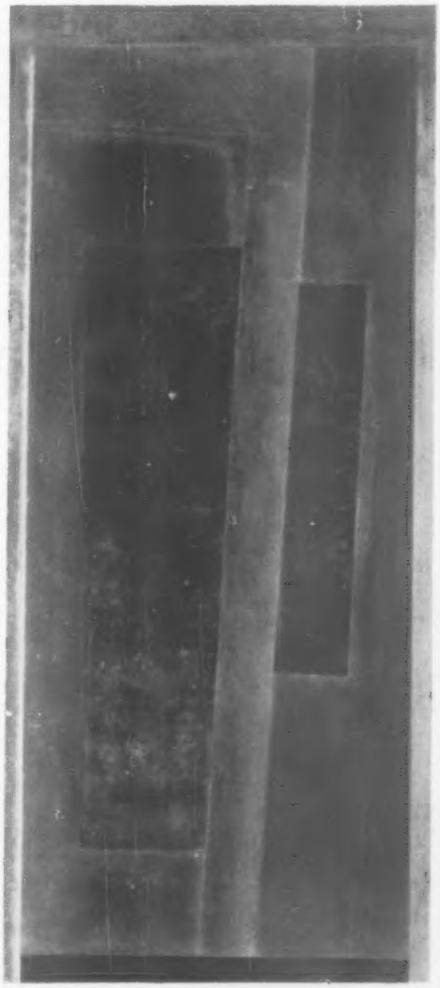
ment to that sense of the life of forms to which so many artists refer when they say with Monet, 'I have no other wish than a close fusion with nature,' or with Cézanne, 'an ideal of art—that is to say, a conception of nature.'

When I went to Gimpel fils to look at the new paintings by Ben Nicholson, I saw there one of Anthony Caro's ponderous female figures. It is much smaller than his 'Woman's Body' at Battersea, but struck me as being an even finer example of his ability to turn the piling up of raw material into a kind of creative cataclysm, 3. He is peculiarly responsive to the rawness and weightiness of impacted clay, and his modelling is so compulsively a matter of kneading the clay into organic-looking protrusions that there's no point in wondering which part of a woman a particular lump might stand for: the outcome is a spontaneous expression of creative personality. Like so many good English sculptors, he has worked in Moore's studio; like Moore himself, he has an innate feeling for mass, and his work promises great things.

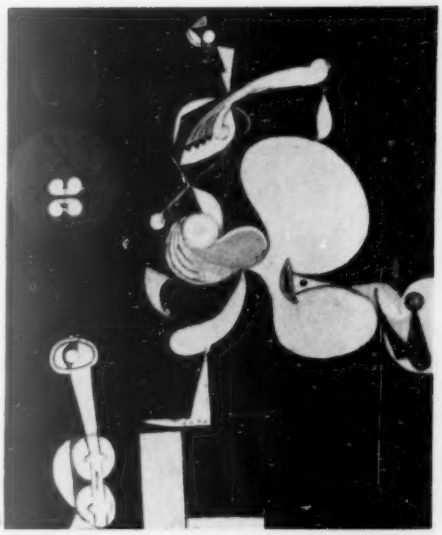
The new Nicholsons suggest a *fin de siècle* sensibility that's been passed through a fine mesh to remove all reference to organic matter. His off-ice-blue and near off-ice-blue geometries, 4, are wintrily Whistlerian; his line describes, with the remote refinement of a reformed Beardsley, curves that might once have been feminine. He is a kind of voluptuary of the inexpressive, and has given a new savour, carefully calculated to verge on savourlessness, to what Mario Praz somewhat slightingly calls 'the well-known feast of the senses.' It is a remarkable achievement: he has taken pure abstraction into the realm of dandyism, and in time to come he will probably be recognized as one of the really outstanding eccentrics of English painting.

I quoted Praz just now because, having Nolan's Leda in mind, I took down *The Romantic Agony* to see if it contained a chapter on sexual love between human beings and animals: but apparently the nineteenth century wasn't as interested in this theme as our own, for Praz doesn't mention it at all.

Actually, apart from Picasso's memorable studies of Pasiphae as a female matador, and Masson's remarkable painting of a woman being ravished by a bull-piano, even twentieth-century artists have concerned themselves more with the outcome of such unions than with the love-affairs themselves—with the minotaur rather than with Pasiphae and the Bull, with bird-men rather than with Leda and the Swan—and this in its turn is an aspect of that general interest in metamorphosis with which the twentieth-century artist



4



5

has symbolized his sometimes melodramatic sense of the transforming power of art.

Ceri Richards has yielded to the influence of several artists in the course of his career, but his continual concern with metamorphosis has given his retrospective exhibition at Whitechapel a remarkable unity. It is an even more constant factor in his work than the comma-like arabesque which runs like a signature through so much of his work. It brings such things as the closely-textured rock paintings, and the large sober abstracts called 'La Cathédrale Engloutie' which contrast so sharply with the arabesques on the same theme, into the main stream of his development. At his best, he has something of Picasso's power to create new and personal images by saturating himself in the atmosphere of another man's pictures. He has done this with Ernst, Miro, Matisse and Picasso himself, and the painting he calls 'The Female contains all Qualities,' 5, is a comment upon Picasso's moon-faced nudes of 1932 as brilliant and original in its way as Picasso's graphic comments on Cranach's standing Venus.

Sir Kenneth Clark, discussing the pastorals of Giorgione and the early Titian in his famous book on the nude, spoke of 'the inspired idea that naked beauty could be a natural feature of the landscape,' and of how the idea was lost when Titian acceded to his employers' demand for nudes in their 'proper place,' on beds and couches. There is a very faint reference to this lost idea in one of the paintings of Leda and the Swan in Sidney Nolan's extremely successful exhibition at the Matthiesen Gallery (only very faintly, because the landscape has not been thoroughly visualized and the picture conveys no sense of that spirit of place which was the special quality of Nolan's early work.) In any case, it was out of key with the other variations on the theme, and was very properly hung

6

in the basement, away from the main group. For the twenty or so large variations, the artist seems to have visualized a kind of film ballet in the dark, with the woman and the swan picked out in coloured lights. Each variation has the look of being a single 'frame' from a long action sequence. In the picture reproduced here, 6, the colours run in strips across Leda; blue on the head, red on the breast, blue on the stomach, red on the thighs, blue above the knees, yellow below, and blue again on the feet. There is a similar compartmenting of colours on the swan, with a red splash on the breast and feet which ties up symbolically with the red on Leda's thighs. To be quite frank, I'd like to own this picture, but I fear that it's only because I find it easy to treat paintings as extensions of real life, and I suspect that I'd like to be the one who comes to this particular Leda's aid when the swan flies away.

In this Leda series, Nolan takes a further step in the process of de-nationalizing his art which he started in the 'Mrs. Fraser' series. The pictures of Mrs. Fraser and the convict making their way through a jungle of semi-automatic textures were Australian in theme but international in treatment. The new pictures deal with a theme which has a higher cultural status whilst remaining basically the same day-dream. ('If you were the only girl in the world and I was the only boy'), and the treatment suggests that Nolan continues to want to be the Max Ernst of the free brush stroke. An international style plus an international theme has turned Nolan into an international figure, which must be very nice for him. But I still think that there's a painter with exceptional potentialities hiding behind this curious and clever façade, and I hope that he will find a way out of his highly successful impasse.

Contrariwise, I hope that John Piper's equally successful exhibition at the Arthur Jeffress Gallery of paintings of Venice will not deter him from continuing his study of the Venetian scene. I think it could easily do so, since he might well feel that Venice is almost too obviously a place in which his art finds its appropriate imagery. But so far he has only produced a very small number of oils of Venice and they are among his finest achievements in this medium. The large 'Scuola di S. Marco and SS. Giovanni e Paolo,' 7, with its rich, sombre colour, its free textures which so effectively associate themselves with architectural ornament, and its measurable yet mysterious space, takes its place among the most splendid tributes that English painters and writers have paid to the loveliest of cities.

Robert Melville

7

FOR FIRM FOOTING AND COMFORT

You can't put a foot wrong with

LINOLEUM

Safety is nowadays a prime consideration in the design of all buildings, from the small bungalow to the most splendiferous hotel.

So a linoleum floor covering, correctly maintained, with its sure grip under foot, is the obvious choice. An agreeable choice too, for modern linoleum offers a wealth of colours, patterns and effects, to set off any chosen decorative scheme.

Linoleum does much to brighten life in the home—and its long life brightens the appearance of the household budget! Always plan your flooring with linoleum in mind.

THELMA

"THELMA" stands for THE LINOLEUM MANUFACTURERS' ASSOCIATION, 127 VICTORIA STREET, LONDON, S.W.1.
For further information write to the Association or to any of the following members: BARRY OSTLERE & SHEPHERD LTD., Kirkcaldy · DUNDEE LINOLEUM CO. LTD., Dundee · LINOLEUM MANUFACTURING CO. LTD., 6 Old Bailey, London, E.C.4 · MICHAEL NAIRN & CO. LTD., Kirkcaldy · NORTH BRITISH LINOLEUM CO. LTD. Dundee · SCOTTISH CO-OPERATIVE WHOLESALE SOCIETY LTD., Falkland, Fife · JAS. WILLIAMSON & SON LTD., Lancaster

Speaking of **LIGHT** ...and **SHADE** ...and **PROFILE**–

—and thinking—naturally—of **UNILUX** Translucent Sheeting. Of light... **UNILUX** allows 85% light transmission with maximum diffusion. And shade... **UNILUX** is available in a variety of attractive colours. And profile... **UNILUX** can be supplied to match the profile of any standard roofing—providing a perfect weather-proof fit.
UNILUX is fire-retardant, durable, strong, easy to work and easy to fix. It is unaffected by weather and climatic conditions and needs no maintenance.

UNILUX is made by a member-company of the U.A.M. Group—a name synonymous with "better building". The "**U.A.M. GROUP INFORMATION BULLETIN**" is published every two months to keep you informed of the Group's activities. May we add your name to our Mailing List?

Unilux the best in Translucent Sheeting

U.A.M. PLASTICS LIMITED · TOLPITS · WATFORD · HERTFORDSHIRE · Tel: WATFORD 34551

A Member of the U A M Group of Companies

FUNCTIONAL TRADITION

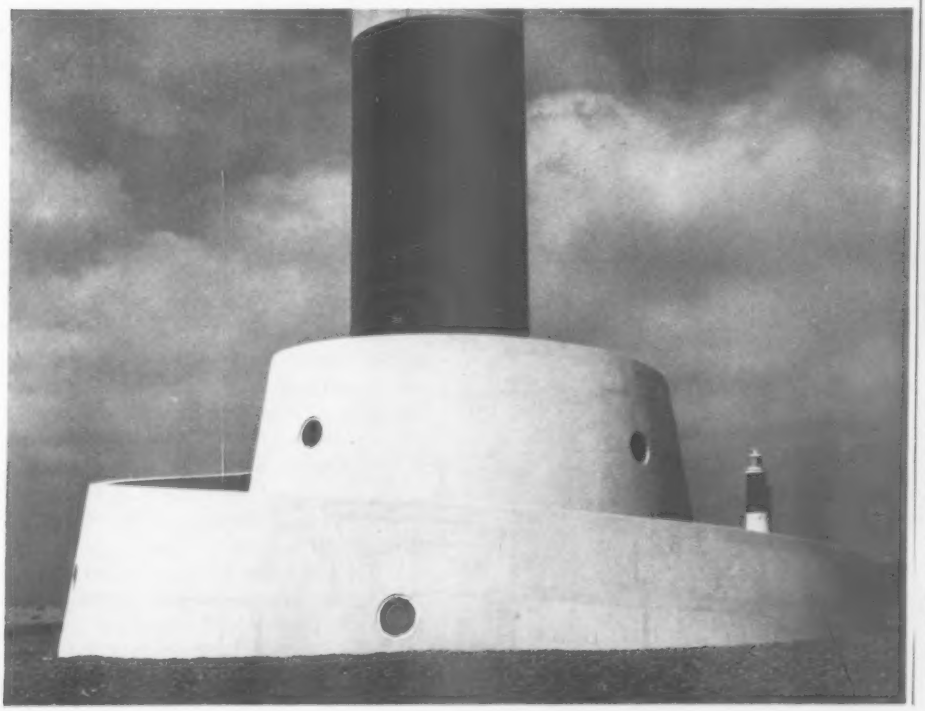
DUNGENESS LIGHTHOUSE

Throughout the REVIEW'S *researches into the Functional Tradition, and its campaigns to get a similar quality into town-detailing, vernacular seaside equipment has been constantly held up as exemplary.* Its value as a guide to design, a school of method, was first significantly observed by John Piper, in his now historical article on 'The Nautical Style' (AR, January 1938), and ever since then, architectural consciences have been haunted by the clear cut forms, tough detailing and crisp paintwork of seaside objects. They have, inevitably, tended to be objects of uncertain or considerable age, because modern equipment seemed to have lost in appropriateness what it had gained in sophistication. Now, however, the new Dungeness lighthouse, 1, offers a high degree of sophistication with a degree of visual appropriateness comparable to the best work of the past.

1

Structurally, it differs from the older Dungeness lighthouse, visible in the distance in 1 and 2, in having no external taper. Modern techniques of prestressing have enabled the architects, Ronald Ward and Partners, to achieve the object of the traditional taper—greater strength towards the base—while building their tower of pre-cast concrete rings of standard diameter, the greater strength being derived from an increased frequency of stressing cables towards the base. The black and white banding of the exterior—for visibility and recognition—is permanently cast into these rings by means of coloured aggregates, and thus needs no repainting. At the base of the tower, a spiral ramp, 2 (seen also on the cover of this issue), leads up to the entrance and gives a structurally—and visually—firm footing, while at the head, beneath the miniaturized 600,000 candlepower lantern, are six bands of acoustically shaped apertures for the fog-horn. The tower itself is empty apart from stairs, 3, since there is no need at Dungeness for living accommodation, and all the machinery, electronics, etc., are housed within the spiral ramp at the base.

2



3

In its over-all form and in its detailing, this is one of the first substantial buildings of purely functional intent in Britain that lives up to the standards established by Orebro water-tower, illustrated as the frontispiece to last month's REVIEW. The more credit, therefore, is due to the architects, not previously connected with this kind of work, for having done simply what many architects, without the guidance of any live tradition, might have been tempted to over-do and over-design.

C. Forehoe

PLANTS

ACANTHUS

This is the second* of a series of herbaceous perennial and climbing plants, chosen as suitable for the external embellishment of buildings.

Anyone who has forgotten what the acanthus has to do with architecture has only to look up Vitruvius, Book IV, Chapter 1. (Fifth century BC, young Corinthian girl's grave, nurse fills basket with sweets and toys, places a tile on top, indigenous plant, acanthus sprouts up and round the basket, architect Calimachus catches sight of accidental spectacle, Corinthian Order is born.) The stone flowering of this Mediterranean plant is probably to be seen at its finest in Diocletian's Palace at Split. There is a living plant lurking I am glad to say in Sir John Soane's Museum.

Its effect in gardens is often underestimated, as the plants take three or four years to develop their characteristic form. Then they provide a rich fountain of dark arching glossy vegetation crowned in summer with spires of curious flowers.

The most valuable varieties are *Acanthus spinosus*, shown here properly established, 1, with elaborate cut leaves, *A. mollis var. latifolius*, 2, which has a broader leaf with a bold outline and wine-coloured flowers (the leaf has a highly polished surface of a deep lustrous vegetable green), *A. spinossimus*, which is darker still, spiky, more compact, and more rarely flowering, and *A. perringei*, 3, which is thorny.

*The first in the series, illustrated and described by Patience Gray in last month's issue, was the Heracleum or Giant Parsnip.

1

2

3

The foliage of Acanthus is more persistent than in the majority of herbaceous plants. Even when cut back by frost new growth appears at once. They should be planted at 3-foot centres in deep well drained soil enriched with rotted compost at the time of planting. Once settled they should be left undisturbed. Give a top dressing of compost in early spring. Acanthus flourish in London gardens. They can be planted in semi-shade, but in my opinion prosper better in full sun, when they flower more freely. They increase by new shoots springing up from the spreading roots. These root 'offsets' can be severed from the parent and replanted in spring.

Clumps of Hostas associate well with these plants, and white flowered campanulas (*C. persicifolia* 'Snowdrift') though neither should be planted too close or they will be covered by the arching leaves; also the biennial giant silver thistle, onopordon. An acanthus group is particularly suited to planting in an irregular space left in terrace paving. Isolated in this way the particular fountain form of growth, which attains 3 feet in height (flower spikes can reach 5 feet) can be appreciated. I have also seen them planted among old-fashioned Gallica and Rugosa rose bushes in full sun, and lurking with ferns and trailing ivy in deep shade.

Patience Gray

As supplied for the new office building of Max Factor & Co. Inc. Bournemouth. *Architects*: Farmer & Dark F/F.R.I.B.A.

Famous

'TANGENT'

for DOORS SLIDING AND FOLDING and DOORS SLIDING ROUND THE CORNER up to 20ft. high and for any width of opening

Despatch bays of William Jackson & Son Bakery, Stockton-on-Tees. Opening 84ft. wide overall.

Folding

PARTITIONS

'COUNCIL' for top hung partitions.

'COLLEGE' where the weight must be taken on the floor.

'Council' and 'College' are available for end-folding or for centre-folding leaves.

Both have ball bearing precision mountings, and furniture is available in B.M.A. Satin Chrome or Self colour finishes. Used for hospitals, schools, restaurants, churches, assembly halls, sports pavilions, verandahs, canteen counter shutters, homes, etc., in a range of over 25 different types.

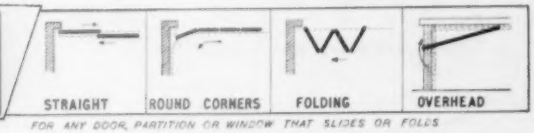
Partition manufacture, installing, and site work can be done by any builder with a competent joinery shop. We supply joinery details (full size). We do not fix.

Mobil Oil Co. Ltd., Staff Hall, Coryton Refinery.

QUALIFIED RESIDENT TECHNICAL REPRESENTATIVES wait upon architects and builders anywhere on request and without obligation.

For 40 Years

Henderson
SLIDING DOOR GEAR



FOR ANY DOOR, PARTITION OR WINDOW THAT SLIDES OR FOLDS

P. C. HENDERSON LIMITED, HAROLD HILL, ROMFORD, ESSEX. *Telephone:* Ingrebourne 41111 (8 lines)

H. 154

Shower Song

Bending and turning and gaily carolling
Loving the feel of the tropical rain
Leaving to Leonard the job of controlling
Once she gets in she just wants to remain.

Gone are the quirks of the old fashioned mixer
Everything else but never just warm,
Thermostat Leonard is fitted to fix her
And keep the temp. fast at divinity's norm.

"Keeping the temp. fast" is just what Leonard control by thermostat does. It turns stone-cold and stinging-hot into steady warm–immovable until the bather moves it. It makes the shower, the Leonard shower, the best bath in the world. That's why the Leonard valve has come to be specified by architects everywhere not just for showers in hospitals and schools, but also in factories and mines and ships.

Please let us tell you more about Leonard thermostatic valves. We have composed literature to cover all applications in detail. Write for engrossing publication S.B.70 to: Walker Crosweller, Cheltenham. The impetuous should 'phone us at Cheltenham 56317 or, in London, at Holborn 2986.

WALKER, CROSWELLER
& COMPANY LIMITED

CHELTENHAM. ENGLAND.

SKILL

HARDWOOD FLOORING 1

G. C. A. Tanner

As a finish which endures heavier punishment than most others in a building, the floor deserves careful consideration in design. Its prominence in maintenance problems suggests, however, that it does not always get this. This is the first of two articles on hardwood flooring and in this article an attempt is made to present a background picture of the trade, to trace the development of the raw material from log to strip or block and to underline the problems posed by modern standards of heating in buildings.

Hardwood is a high quality flooring material demanding a standard of preparation and workmanship in its laying which will justify its cost and ensure that full advantage is obtained from its inherent characteristics—a hard wearing surface, a pleasing appearance, warmth and quietness. Traditionally it is laid by specialist sub-contractors who are often, though not always, manufacturers as well as contractors. The rapidly broadening field of new materials and techniques within the building industry to-day makes the architect's task of keeping abreast an onerous one. The tendency to know less about specialist work and rely more on the know-how and advice of the specialists themselves is a regrettable concomitant of this. Whilst no architect is expected (even by his client) to know everything, and whilst the integrity of manufacturers and contractors in the trade generally is not in question, a working knowledge of hardwood flooring, its characteristics, its drawbacks and advantages, is important if the architect is to take it into account at the design stage (as he should do) and fully exploit its possibilities.

The trade

As timber is a traditional material it is not surprising that the timber trade retains, as one writer put it, '. . . a nineteenth-century atmosphere to a greater degree than do most other sections of the building industry.' This is not to say that it is inefficient or behind the times. Its links with the past are found in such things as the use of water transport for raw materials. Most large timberyards adjoin a canal or river and timber is shipped to them by barge from the ports.

The hardwood flooring trade is divided into two parts—manufacturers and contractors. The term *manufacturer* in this context simply means one who takes the raw material and converts it, by a sequence of machining operations and by air- and kiln-drying, into flooring blocks or strips. Many manufacturers do not specialize in flooring, but are importers and/or merchants of timber for other uses—joinery, the furniture trade and such-like. The larger manufacturers usually are in the contracting business as well, but there are many hundreds of contractors throughout the country—some of them quite small firms—who do not manufacture flooring but merely obtain their supplies from manufacturers in this country or occasionally from abroad. The reason for this is self-evident. Before even it is put into the kilns hardwood should be air-dried for at least a year. This means stock-piling in the yard at least a year's supply of timber, requiring not only capital resources but a fairly large area of land for the stacks. Few small firms can contend with this.

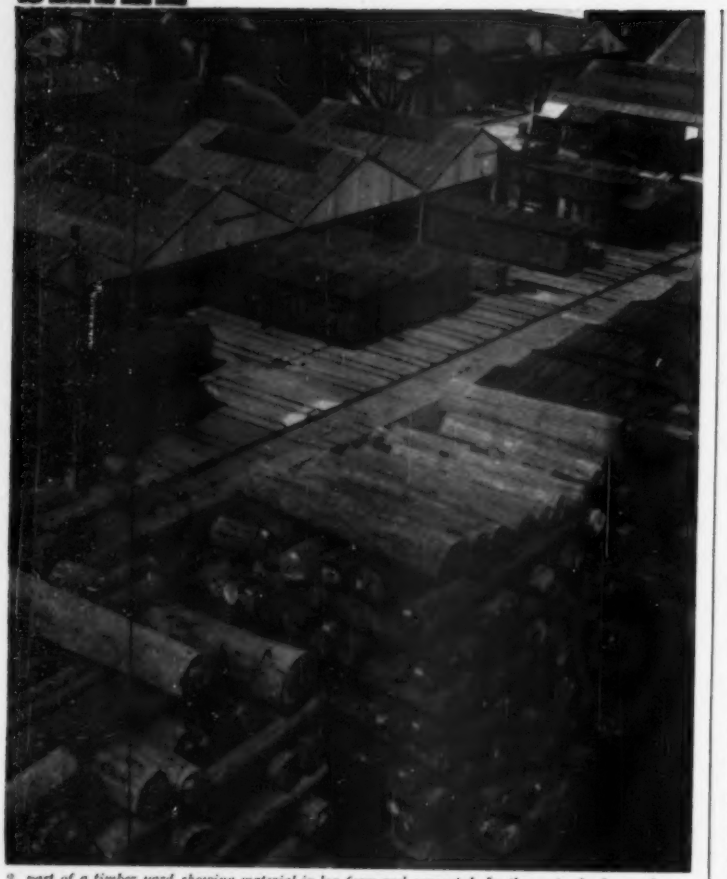
There are three associations primarily concerned with the trade. The Hardwood Flooring Manufacturers' Association is what its name implies, although, as mentioned above, many of its members are contractors also. The association concerned solely with contractors is the Association of Flooring Contractors and the predominant membership is drawn from small firms who are not manufacturers as well. The British Institute of Hardwood Flooring Specialists is an association of firms who are both manufacturers and contractors.

Unlike the Timber Development Association, whose brief is to popularize the use of wood in general and who publish voluminous technical information, these associations exist primarily to present a united front on behalf of all their members and, as associations, they are represented on the advisory committees of the TDA, the British Standards Institution and other organizations whose purpose it is to publish codes, standards and other information on the subject. Most of the prominent members of the three trade associations belong to the TDA.

The timber

Hardwoods are imported into this country from many parts of the world, 1, a large proportion coming from the tropical and near-tropical areas. At the time of writing and for some years now, the hardwoods of Africa represent a fairly high percentage of imports. Whether the gradual and inevitable emergence of independent states in this part of the world will have an effect on the supply of hardwoods to this country only time can tell. Certainly there is no likelihood of the forests being exhausted by our demands in the foreseeable future.

1, *the hatched areas represent the principal sources of the world's supplies of hardwood.*



2

3

2, part of a timber yard showing material in log form and converted. In the centre background near the sheds are stacks of flooring blanks. 3, a stack of flooring blanks in the yard of a manufacturer.

Hardwood which is to be used say for joinery or in the furniture trade, often comes into this country in log form, 2. Otherwise it is imported in *boules*, which are logs cut through-and-through, reassembled and tied by means of steel straps. When imported for flooring, however, it is more likely to be in the form of what is known as *flooring blanks*, 3, which are pieces of timber, sawn from the log to a nominal size (usually 3 in. by 1 in.) and, when intended for block as distinct from strip flooring, in random lengths up to about 3 ft. but in multiples of 9 in. The sections to which flooring is machined are directly related to the methods of laying. Apart from traditional techniques there are many patent systems on the market. These and the machining of traditional sections, therefore, will be discussed in the second article.

A certain amount of hardwood flooring is imported into this country in manufactured form. This means that it has been kiln-dried to a specific moisture content and machined to its finished section as a flooring block or strip in its country of origin. Most imported manufactured flooring comes from the USA or Canada, though a certain amount comes from Japan and Scandinavia. The implications of this practice are discussed under the section on seasoning.

There is a saying in the trade that the timber used for flooring blanks is the 'offal.' What this means is not that it is poor quality material but that it is what is left over after the larger sections have been cut from the log. Often a species will come into demand for a specific use, such as railway sleepers. The effect of this may be to bring this species on to the flooring market. The log is converted by taking first the lengths suitable for sleepers and utilizing the balance for flooring lengths.

Converting the log

Conversion, according to BS 565 (1949) (*Glossary of Terms Applicable to Timber, Plywood and Joinery*) is the process of sawing timber from the log.

Basically there are two ways in which logs can be converted into sawn boards, which is the first stage of their evolution from log to floor. The method most widely used is sawing through-and-through. Approximately two-thirds of the saw cuts will be tangential to the growth rings of the log. The remainder are known as radial cuts, 4. Tangential cuts produce *flat-sawn* boards and radial cuts *quarter-* or *rift-sawn* boards.

The second method of conversion, which is less common, is intended to produce virtually only quarter-sawn boards. The reason it is less popular with sawmillers is that it involves considerably more handling during sawing as the log has to be turned many times.

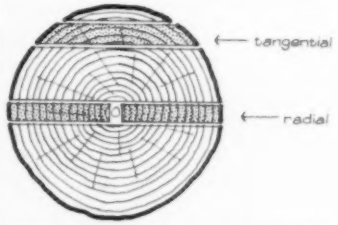
Whilst, in theory, quarter-sawn boards are more desirable, it is unreasonable to demand that all timber for flooring be converted by the second method above. In softwoods quarter-sawn material is essential to increase wearing life, but the difference in structure and wearing qualities makes it unnecessary for hardwoods.

Seasoning

It is, or should be, well known that the effect of temperature and humidity change on timber is to cause expansion and contraction. Needless to say, this movement is greater in timber than in most other building materials and, unlike certain of these materials, such as steel, for example, timber does not allow the amount of movement to be determined accurately beforehand.

When a piece of timber—whether flooring, joinery or movable furniture—is fixed in a building and a constant condition of humidity and temperature is eventually obtained, it will reach a level of moisture content at which it neither gains nor loses moisture. This is known as its *equilibrium moisture content* and varies slightly with the species. The object of seasoning is to reduce its moisture content to this level before it leaves the yard. Normally this is done in two stages. The first is called air-drying and involves stacking the flooring blanks on battens, usually out in the open yard, for a period of a year or more, an old 'rule-of-thumb' being to allow one year air-drying per inch thickness of timber. Stacked in the yard in this way it is known as being *in stick*, 5. The idea of keeping the individual blanks apart and on battens is to permit free circulation of air round the timber. Newly-felled timber contains a very high proportion of water which, in damp conditions, may remain in the wood for a long time. Air-drying is a natural process which causes the water to be gradually dried out until the timber attains a moisture content in balance with that of outside conditions in this country, which will be between 15 and 20 per cent. There is a difference of opinion within the trade on the necessity for air-drying over a period of time as long as this. Those who argue against it claim that it is no longer necessary as intelligent kiln-drying will ensure that timber reaches the consumer in a satisfactory condition. On the other hand, those in favour insist that air-drying is just as essential as it was before the development of kiln-drying. They point out that, in addition to removing moisture, it assists in stabilizing the other constituents such as starch, sugar, resin and tannic acid, many of which are of a hygroscopic nature and will remain unaffected if kiln-drying only is carried out.

The second stage of seasoning is to bring the timber down to a moisture content suitable for inside conditions. This is done by the process of kiln-drying, an operation which will take from one to three weeks and some-



4, cross-section showing tangential and radial cuts produced in a log sawn through-and-through.

times more according to the species and thickness of timber and the conditions of the building into which it is going.

A kiln, 6, is simply a sealed room or compartment in which the timber, stacked in the same way as when air-drying in the yard, is exposed to controlled conditions of temperature and humidity. Basically there are two kinds of kiln, the one in which air is circulated by the natural tendency of hot air to rise and cold to fall, known as a Natural Draught Kiln, and the other in which fans are employed to drive the air, known as a Forced Draught Kiln. Speedier drying occurs than in air-drying because conditions are strictly controlled and higher

[continued on page 229

the logical use of colour in building no.5

glare:

The influence of the work of some of the leading Continental architects on the use of colours, of different light reflecting qualities, upon the various walls of rooms has been widely used in this country, but the principles of the use of colour in this way have been ill-understood and therefore inevitably abused when attempts have been made to transfer the attractive schemes of decoration often seen in European countries to buildings and rooms throughout the length and breadth of this country.

The original purpose of the continental architect was to obtain as nearly as possible equality of light intensity through the room and, at the same time, to reduce contrast to a minimum except where deliberately planned.

The first principle then is to use the lightest colour upon the walls containing the windows and the less light-reflecting colours upon the lightest. In this way equality of illumination by light reflection from the walls can be achieved, and a harmonious surrounding created by the elimination of glare due to violent contrasts. Glare just below the conscious level is a common fault in decoration. By attention to the principles enumerated above such a major fault can be entirely eliminated.

The next announcement in this series will be on " Highlights".

Goodlass, Wall & Co. Ltd., Corn Exchange, Liverpool 2 or 179/185 Gt. Portland St., London W1

COLOUR

NOW

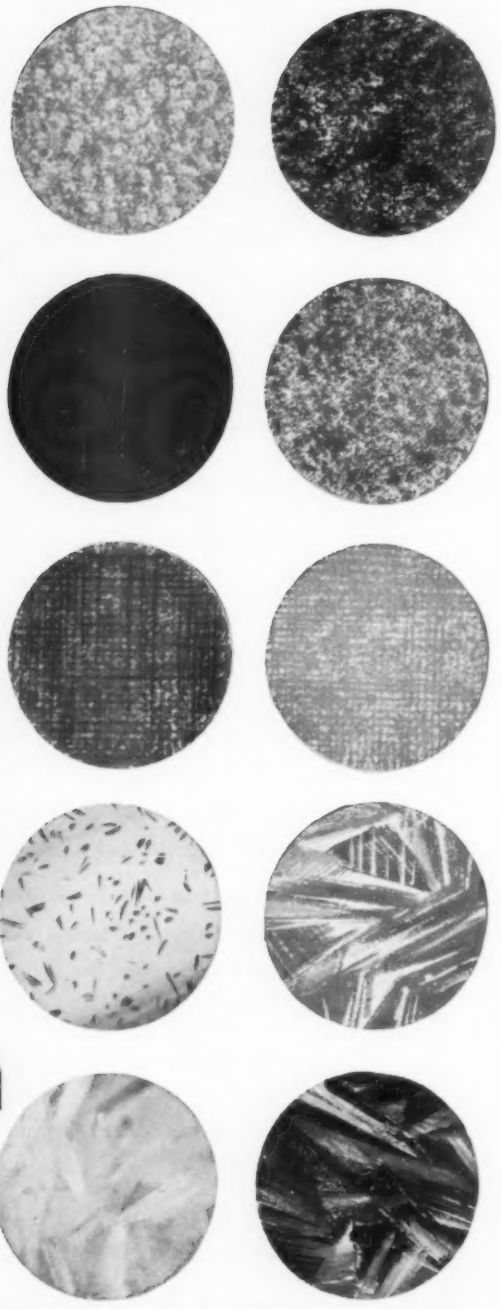
EVERGLEAM

COUNTER TOPPING by

GOODYEAR

starts a counter revolution

Flexible vinyl – curves easily to sharp radii



EASY TO LAY

Evergleam cuts with ordinary scissors . . . rolls in one piece over splash back, counter top and edge . . . gives seamless square-edge facings . . . fixes permanently with contact or impact adhesive.

EASY TO MAINTAIN

No waxing. No scrubbing. A damp cloth keeps Evergleam sparkling clean. It resists dirt, scuffing, all normal hazards — stands the 'hot pan' test. And it won't chip or crack.

EASY ON EYE AND EAR

Evergleam is decorative . . . comes in an array of 23 sealed-in colours, patterns and textures. Evergleam is resilient . . . absorbs blows, turns strident clatter to soft murmur in restaurant, canteen, coffee-bar or store.

EASY ON THE POCKET

With all its good looks, Evergleam is cheaper to buy, cheaper to instal, cheaper to maintain . . . gives lasting wear at lowest cost. It's the topping for your next contract.

HAVE YOUR SECRETARY POST THIS COUPON

To: Goodyear Tyre & Rubber Co. (GB) Ltd., Wolverhampton.

Please send booklet ARI describing Evergleam Vinyl Counter Topping

Name _____

Company _____

_____

Address _____

_____

continued from page 228|

temperature and a positive circulation of air maintained. The process of heating, of course, merely draws moisture from out of the timber. To avoid evaporating the moisture from the surface of the timber more rapidly than it moved there, in which case there would be a risk of peripheral shrinkage and splitting of the timber, it is necessary to humidify the circulating air by live steam or some other means in order to maintain the rate of evaporation at a safe level.

Large manufacturers of flooring have their own kilns and often kiln-dry timber for other merchants. They are very likely to be members of the Kiln Owners' Association. Kilns are, or should be, controlled by a skilled operator who works by authoritative kiln-drying schedules, such as those published by the Forest Products Research Laboratory.

The moisture content to which flooring should be kiln-dried will vary with conditions within the building. For this reason alone it is essential for the flooring contractor to be informed at the letting of the contract of the conditions which will obtain. This means that he must be told what, if any, heating will be used in the building, so that he can ensure that the flooring is kiln-dried beforehand to a suitable level. Table 1, which is extracted from B.S. 1187 (1959) *Wood Blocks for Floors*, gives levels of moisture content under various conditions. This standard relates to wood blocks but the figures apply equally to strip flooring.

5, timber in stick—*air drying in the yard.*

table 1

type of building	ranges of moisture content at time of delivery
buildings without heating subject to day-to-day fluctuations in atmospheric conditions	14 to 18 per cent
buildings with intermittent heating, such as from open fires	12 to 16 per cent
buildings with central heating	10 to 14 per cent
buildings with high degree of central heating, such as in hospital wards	8 to 12 per cent
Note: where heating panels are embedded in the floors or ceilings it is necessary to kiln-dry wood blocks to a moisture content lower than the minimum of the lowest range given above.	

6, a forced-draught kiln partly filled with trolleys laden with flooring blanks. All the photographs in this article were taken at the Barking yard of The Acme Flooring & Paving Co.

Heating

Whilst we do not yet accept North American standards of heating, the extent to which we heat buildings to-day is very much greater than it was ten years ago and makes pre-war standards appear quite primitive in retrospect. Buildings are warmer and drier than ever they were and, as far as hardwood flooring is concerned, the implications, generally, are not fully appreciated.

Most heated interiors impose conditions which must be taken into account in the selection of a flooring timber, its kiln-drying and its method of laying. It is highly desirable that only the more stable hardwoods be used, and it is essential that, whatever the timber, it be kiln-dried to a lower moisture content than otherwise would be necessary. The influence on the sub-floor and on methods of laying will be discussed in a second article. It cannot be overstressed that both the fact of heating and also details of the installation must be transmitted to the flooring contractor when the contract is let. Failure to select a suitable timber or to bring it to the correct moisture content may produce trouble in the finished floor which can be expensive to rectify. Expansion in flooring which has been dried to a correct moisture content will occur only if it is exposed to damp conditions. It can be rectified fairly easily. Timber which has not been brought to a sufficiently low moisture content, however, will shrink. This is much more serious since the shrinkage will not be uniform.

The need to take account of heating is even more critical when floor warming or ceiling panel heating is used. When electrical cables are embedded in a screed on which hardwood flooring is laid, the temperature of the floor will probably be in the region of 75 deg. F. and that of the screed 90 deg. F. It must be remembered that, compared with other floor finishes, hardwood has a relatively high resistance to the transmission of heat, the effect of which is to produce higher temperatures within the screed itself. It is not suggested that hardwood flooring is an unsuitable finish over floor warming. There is no reason for it not to be entirely satisfactory provided (*a*) a stable timber has been selected, (*b*) the timber is kiln-dried to a suitable moisture content (6 to 8 per cent, but it can vary with the species—the advice of the flooring contractor should be sought) and (*c*) the heating system is sensibly controlled. This means avoiding the temptation suddenly and rapidly to raise room temperatures, as when a cold snap occurs, or having room temperatures which are excessively high.

The acceptance of a reasonable standard of heating in buildings has, of course, made kiln-drying even more essential. But the important point is not that timber should be kiln-dried but that it should be kiln-dried to a moisture content suitable for the conditions within the building when occupied. In fact it is this point which presents the problem with imported flooring. A good deal of Canadian maple flooring strips, for example, as well as material from the USA, Japan, Sweden and other parts of the world, comes into this country every year. Generally it is good quality material, but it has already been kiln-dried in its country of origin. As the result there is no means of adequate control, particularly during transit, and it cannot be put into the kilns in this country. Imported flooring, though it is stocked by most of the large manufacturers, should be treated with caution.

Sources of information

There is no dearth of information on the subject of hardwood flooring, but it is scattered amongst many

SKILL

books and pamphlets, and is often presented in a way which does not make it easily digestible for the architect. Textbooks on building construction devote some space to it usually as part of a section on floor finishes. Some textbooks, however, are still showing methods of laying floors which are not now (if they ever have been) practised by the trade or recommended by people with a sound knowledge of the subject both in and out of the trade.

A British Standard Code of Practice, CP 201 (1951) *Timber Flooring*, deals both with softwood and hardwood in its various forms—board, strip, block and parquet. The Code sets out recommended practice for the laying of the sub-floor as well as the finished floor, and discusses seasoning, preservative treatment, sequence of operations and so forth. Revision of this nine-year-old Code is due shortly, however, and items which should receive attention will include, no doubt, the wider range of hardwoods available for flooring and a rationalizing of recommended methods of laying to bring them into line with those practised to-day and with the many patent systems now on the market.

The selection of a timber is not just a matter of deciding what colour or figuring is desirable for the floor. Of the several factors which influence the success of a hardwood floor by no means the least is the selection of a timber suitable for the traffic which the floor will receive. British Standard 1187 (1959), *Wood Blocks for Floors*, catalogues species of hardwood and softwood suitable for different uses. These include floors designed primarily for pedestrian traffic, graded as light, normal or heavy, and floors designed for specific uses such as industrial, gymnasium, ballroom or skating-rink.

By far the most prolific source of information is the Timber Development Association. It publishes a series of red books on subjects such as timber seasoning, timbers for house building, timber and fire protection and many others. Its issue on wood flooring has recently been revised. In addition, it publishes pamphlets and leaflets and has recently revised its booklet entitled *Wood Floors* (price 3s.) which is a useful little handbook containing diagrams showing alternative methods of laying all types of wood floor. It contains a full bibliography of official publications on the subject.

The Forest Products Research Laboratory devotes several of its bulletins to the subject. Needless to say, both the Forest Products Research Laboratory, which is a division of the Department of Scientific and Industrial Research, and the TDA undertake to give information and advice.

THE INDUSTRY

Office partitions

Current practice in the design of office buildings is to provide large areas of undivided space so that the occupant, who is often a tenant of the building owner, can sub-divide it to suit his needs. The result has been to make the movable partition, like the desk and the telephone, a piece of office furniture. Manufacturers of office equipment have worked on this assumption for some time anyway and most large manufacturers market patent systems. Shannons have just announced their own latest contribution to this field, which they call 'Interlock' or 'Modular Partitioning,' 1. Unlike many of their competitors who pin their faith on metal construction, they have chosen timber as the basic material. 'Interlock' is a 'post and infill' system (see Skill article, AR, May, 1960) which means that it is built up on site with timber posts and cross members of the same section and a floor plate. The posts and cross members are fitted together by means of a simple keyhole locking device and the infill panels are held in the groove formed by the floor plate and skirtings and locked by the cover strips on the posts and cross members. These panels are made in three standard sizes, 8 ft. by 4 ft., 4 ft. by 4 ft. and 2 ft. by 4 ft., and are finished in a wide range of coloured vinyl plasties or light oak, teak or mahogany veneers. Provision is made either for single or double glazing. Pre-cut lengths of beading are pinned to the posts and cross members and the glass held in position by setting it in plastic. Levelling adjustment is achieved by means of jacks built into the posts at the top. The floor plate is grooved to house electrical wiring. *The Shannon Limited, Shannon Corner, New Malden, Surrey.*

1, Shannon's 'Interlock' office partitioning.

2, Perkin's induced draught boiler.

Induced draught boiler

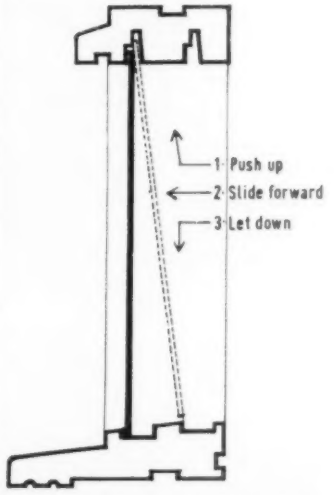
An oil-fired boiler usually operates in one of three ways: natural draught, forced draught or pressure jet. A new boiler, 2, has recently been introduced by Perkins which uses another principle: induced draught. In this model an electrically operated fan is mounted on the outside of the boiler casing near the top and draws air from the fresh air inlet at the base up through the boiler. The makers claim that this method is a highly efficient way of maintaining a constant, regular supply of fresh air through the boiler which is the secret of satisfactory combustion. Good combustion by oil, they say, is clean, which means that a minimum of fumes and smoke passes through the flue. A short flue is all that is required with this boiler, passing straight through the roof or, alternatively, through an external wall and fitted with a T-piece outlet.

By comparison with other types of boiler on the market, the Perkins model is not particularly good looking, a deficiency due almost entirely to the external mounting of fan, time switch, transformer, controls, cables and so on. It is true that unmistakably it looks what it is—a boiler—and the makers apparently had in mind discouraging householders from installing it in the kitchen. They believe that an outhouse, for example, or a former coal bunker, where a constant supply of fresh air will be available, is a better place for their boiler. None the less, the principles of sound design which seem to be behind the mechanical elements of this boiler probably could be applied to the casing with good effect.

The boiler is made in three sizes with the following capacities in B.t.u.s. per hour: 35,000 (£90), 45,000 (£95), 50,000 (£99), 60,000 (£110) and 70,000 (£115).
Perkins Boilers Ltd., Mansfield Road, Derby. Derby 48235.

Sashless windows

Jayanbee Joinery are marketing a range of sashless windows, 3, designed and patented in Canada where they have enjoyed considerable success over the past five or six years. As will be seen from the sketch the principle is simple and in practice works very well. The glass is $\frac{5}{16}$ in. thick with ground edges and this slides along the groove in the sill. A slight slope to this groove towards the outside plus the weight of the glass itself, which is otherwise held only at the head, ensures that it will slide evenly and not jump out of the groove. The system of double grooves at the head enables easy insertion or removal of the glass from the inside. The frame is constructed in West African Utile and neat attachments are provided for guides or locking. The 'Pierson' window as it is called



3, section through a Jayanbee sashless window.

is manufactured in a wide range of standard sizes based on brick dimensions and includes combinations of fixed and sliding sashes in single and double glazing. Costs, including the supply and installation of glass, are between 8s. and 9s. 6d. per square foot for the single glazing and 12s. 6d. and 14s. 6d. for double.
Jayanbee Joinery Ltd., Uxbridge, Middlesex. Uxbridge 8222.

Double and multiple glazing

Architects are wary of using technical information supplied by manufacturers unless it is merely information concerning that manufacturer's product. Even then they tend to treat cautiously the data pertaining to inherent qualities of the product—

[continued on page 232

a spray basin made in Vitreous China

The 'Standard' Handspray is designed to take full advantage of the economies of a single spray tap. Though intended mainly for schools, it is equally suitable for offices, shops, factories and cloakrooms in houses. The Handspray is symmetrical, compact and aesthetically pleasing. It is made in 'Standard' vitreous china. This material is hygienic because it is non-porous and it has the strength to resist rough treatment. For fine design in the most suitable material, specify 'Standard' vitreous china.

Handspray basin by Standard

478

MANUFACTURED BY IDEAL BOILERS & RADIATORS LIMITED · IDEAL WORKS · HULL
Visit our Stand No. 29 at the Building Trades Exhibition, Manchester, October 11th—22nd.

continued from page 230]
its resistance to fire or its impermeability, for example. This may seem unfair, but the fact is that, by and large, a manufacturer is bound to take an optimistic view of the potentialities of his product and the architect, if he is wise, has no alternative but to adopt a cautious attitude. Nevertheless, there is technical information published by manufacturers which is every bit as useful to the architect as the information from impartial sources—research organizations, the BRS, the Forest Products Research Laboratory. This information does not aim to sell a product although it will usually concern itself with the range of materials and its techniques within which that manufacturer's product comes. Such a publication is *Daylight with Insulation*, an elegantly produced book by the Pilkington organization. The author is Thomas A. Markus, an architect who has interested himself in this subject for some time and who was responsible for a series of articles on the glass curtain wall published in *The Architects' Journal* in 1957. As the name of the book indicates, Mr. Markus's aim is to emphasize the improved conditions of natural lighting, sound and thermal insulation in buildings which can be obtained by a rational approach to the design of the window and to glazing in general. Parts of the book are somewhat superficial. They do not tell you anything which the intelligent architect should not already know. The section on daylight, for example, aims only, in the author's own words, '. . . to draw attention to the *principles* of daylight improvement by means of double glazing.' On the other hand, such principles are clearly expressed and illustrated with pleasant, simple drawings, making the book a quick reference for the busy architect who either does not know or wants to refresh his memory about a point. The sections on heat transfer and the problems of heat loss, humidity and sound are dealt with in some detail and useful tables, graphs and working examples are also provided. The author has gone into the economics of fuel savings obtaining from the use of double or multiple glazing, and supports his arguments by quoting figures based on actual examples. The book concludes with a brief, but useful, set of drawings showing glazing types for double and multiple glazing and an annotated bibliography. *Daylight and Insulation* does not break much new ground, but its virtue lies in the fact that it brings together in one slim volume a number of subjects which have in common their application to one important element in the building. The publication, which is primarily intended for architects, is available from Pilkingtons.
Pilkington Brothers Limited, St. Helens, Lancashire.

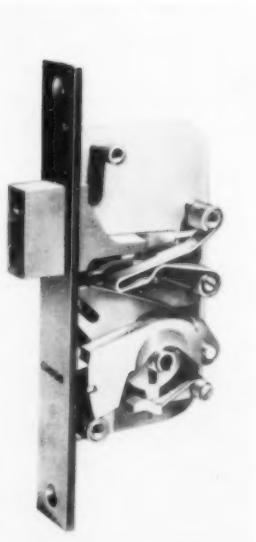
4, locking device on the Allom Heffer recessed ceiling light fitting.

Recessed light fittings

Towards the end of last year a range of recessed ceiling fittings was put on the market by Allom Heffer which is one of the simplest and neatest of its type currently available. The fittings are made in five sizes—2 ft. by 2 ft., 4 ft. by 2 ft., 6 ft. by 2 ft., 4 ft. by 1 ft., and 5 ft. by 1 ft.—and have either a plain perspex diffuser or metal louvres or egg-crate polystyrene louvres. A feature of these fittings is the locking device, 4, at the four corners of the fittings. A metal tab is fixed to the four corners of the diffuser or louvre panel and this engages a slot in the sliding bracket attached to the fitting itself. The panel can then be sprung up into position.
Allom Heffer & Company Limited, 17 Montpelier Street, Knightsbridge, London, S.W.7. Knightsbridge 6897.

New range of locks

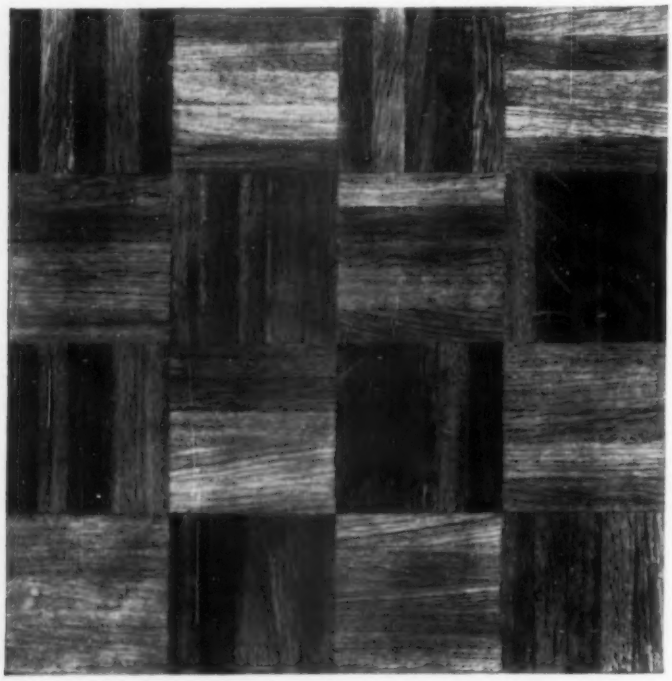
Chubbs have introduced to the market a new range of locks. The range includes a 2¾ in. mortice deadlock, 5, a 3 in. mortice locking latch and a 2½ in. two-bolt upright mortice lock. In addition new designs include an hotel lock, a rim lock, a locking bar and sliding door locks.



5, cut-away of Chubb's 2¾ in. mortice deadlock.

Chubbs lay great emphasis on the high degree of security achieved by these locks. The mechanism permits a large number of key variations and includes three security devices to frustrate 'picking' of the lock. In addition it is claimed that skeleton keys cannot open any of these locks. The mortice deadlock (ref. 3G110) has a solid steel bolt (reinforced with har-

[continued on page 234



Windsor PREFABRICATED OAK MOSAIC FLOORING

The Windsor Floor
PATENT Nº 544228

The above device is printed in bronze blue on the sheet of paper protecting the upper surface of every *genuine* panel of "Windsor" floor and is your protection against unsatisfactory imitations.

THE FIRST——
——THE BEST

The illustration depicts "Windsor" standard oak floor. "Windsor Royal" with dark oak contrasting inserts, and certain exotic timbers, are also available.

For full particulars and the address of your nearest approved laying specialist, write to:

WINSORFLOR LTD.
ENHAM ARCH WORKS
NEWBURY ROAD
TELEPHONE ANDOVER 3092
HANTS

We are proud to announce that THE WESTBURY, London's newest luxury hotel, is equipped with Still's Floor Service Unit. Measuring only 7′ 6″ x 2′ 6″—easily installed in floor pantries—these units incorporate a complete range of services, enabling a full breakfast menu to be served independently of the main kitchens. The facilities of the Floor Service unit include: Sink, water boiler, automatic egg cooker, boiling rings, toaster and griller, refrigerator, storage cupboard and utensil shelf.

For full details write for leaflet

W. M. STILL & SONS LTD

29/31 Greville Street, London, E.C.1

Tel: HOLborn 3744

Manufacturers of fine kitchen equipment for over 80 years. Branch Offices at Manchester, Bristol, Glasgow.

APB10

continued from page 232]
dened steel rollers to resist the hacksaw) which engages in a steel box plate to prevent attack on the head of the bolt. It is suitable for either 'hand' of door and can be made to operate under master key en suite with other locks in the range. Standard finish of key plates is BMA or polished chromium plate. Price 39s. 6d. The mortice locking latch (ref. 3R35) 'deadlocks' automatically every time the door closes. An extra turn of the key locks the handle on the inside and double locks the bolt. A snib catch holds back the bolt if the door is left ajar. Finishes for the door handle and key plates are aluminium (75s.) or satin nickel bronze, polished or satin chrome and BMA (all 80s.). The two bolt upright mortice lock (ref. 3K70) is priced at 45s. All the locks can be made to operate under master key en suite with other locks in the range and are available for pairs of doors with $\frac{1}{2}$ in. or $\frac{3}{4}$ in. rebate. Standard finish of the forend is light bronze.

Chubb & Son's Lock & Safe Co. Ltd., 14-22 Tottenham Street, Tottenham Court Road, London W.1. Museum 5822.

6, the Crabtree domestic circuit breaker.

Circuit breakers

The irritating experience of being plunged into darkness in the middle of entertaining the boss to dinner or watching the telly is one enjoyed, apparently only by British householders. For some time now householders on the Continent and in the USA have ensured immunity from the little game of finding the fuse in the dark and groping for fuse wire in a kitchen drawer full of sharp knives, by dispensing with the rewirable fuse and using instead a circuit breaker. At last domestic type circuit breakers are coming on to the market in this country. The unit manufactured by J. A. Crabtree & Company Limited, 6, is of neat appearance and looks, in fact, like any other lighting switch. When overloading occurs the switch for the appropriate circuit automatically goes off. If you switch it on again it automatically goes off again and is quite prepared to keep up this little game until you go and unplug the faulty appliance or switch off the extra appliances which have caused overloading.

J. A. Crabtree & Co. Ltd., Walsall, Staffs.

Bituminous waterproofing handbook

Though architects are in the main well informed about the laying of sheet metal roofs, the same cannot be said of bituminous roofing systems. Yet the requirements of these last are in their own way as exacting. To correct this, Evode have produced a booklet not only explaining which of their systems to use in different circumstances and for different types of construction, but also giving very clear instructions on how the work should be carried out. The booklet is intended primarily for overseas use and for this reason combines information needed by the architect, by the contractor and by the operative. Also it gives data on the roofing of comparatively out-of-the-way structures such as hyperbolic paraboloid timber and concrete roofs. To the best of our knowledge no other manufacturer of roofing materials has got round to that one yet. We have one criticism to make: this booklet is more concerned with giving information than with selling a product. For this reason we suggest that it should be more sober in appearance and that it should conform to the A4 size.

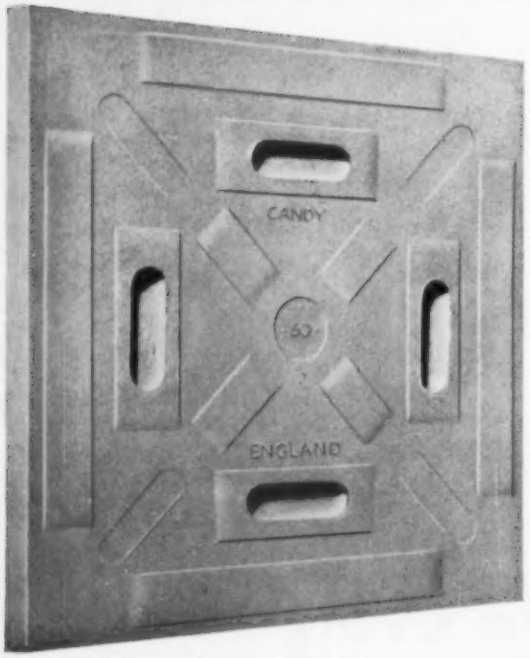
Evode Ltd., 82 Victoria Street, London, S.W.1.

Technical data sheets

The Patent Glazing Conference, which describes itself as one of the older trade associations (it is an association of some twenty specialist firms) recently produced the first of a series of Technical Data Sheets. In the foreword it is pointed out that whilst there is a BS Code of Practice for patent glazing (CP 143.101 (1951)) there is as yet no British Standard. Thus, whilst the code specifies re-

[continued on page 23

NEW FORMULA *Devon Tiles cut moisture expansion*



Crazing. Adhesion failure. This is what high moisture expansion can do to a tile in service. No more of that. This new Devon Wall Tile formula combines, for the first time, a high strength, low porosity tile with the control of size and shade which gives a guarantee of easy fixing and a perfect job.

In addition to all this, there's a glorious new range of colours (many of them to B.S. 2660), and an inspiring variety of patterns to choose from. Both the glazes and the tile are suitable for exterior use. What more can a tile offer?

Remember, the back of a wall tile is as important as the front.

DEVON WALL TILES

Made by Candy & Company Limited,

the sole manufacturers of the Devon Fire.

Write for Catalogue to:

Department R.1,

Candy & Co. Ltd., Newton Abbot, Devon.

Put the sun into your ceilings

BOARD ROOM for the British Cycle & Motor Cycle Industries Association Limited, Coventry
Architects: Messrs. W. S. Hattrell & Partners, Coventry
Heating & Ventilating Engineers: Messrs. Young, Austen & Young Ltd., Leicester

STRAMAX

RADIANT HEATING & ACOUSTIC CEILINGS

STRAMAX CEILINGS (G.B.) LIMITED
19 Rea Street South, Birmingham 5
Telephone: MIDland 4674/5/6 Grams: STRAMAX Birmingham 5

LONDON OFFICE:
170/172, Falcon Road, Battersea, S.W.11 *Telephone: BATtersea 2587*

continued from page 234]
quirements which are generally recognized as good practice, it does not cover specific technical requirements, dimensions, thicknesses, etc., which are more appropriate for a BSS. One of the objects of these data sheets, therefore, is to provide information for architects normally set out in a BSS.

The two sheets so far published are concerned, one with aluminium alloy patent glazing bars and the other with lead-clothed steel. They set out technical information such as the precise composition of the material, structural limitations, accessories, and include a brief specification. It is all information which the architect needs to know and is presented in a clear, concise form. It is reassuring to know that the members of the PGA listed in the preamble all, presumably, produce an article which satisfies the precise requirements set out in these data sheets.

Patent Glazing Conference, Burwood House, Caxton Street, S.W.1. Telephone Abbey 5051.

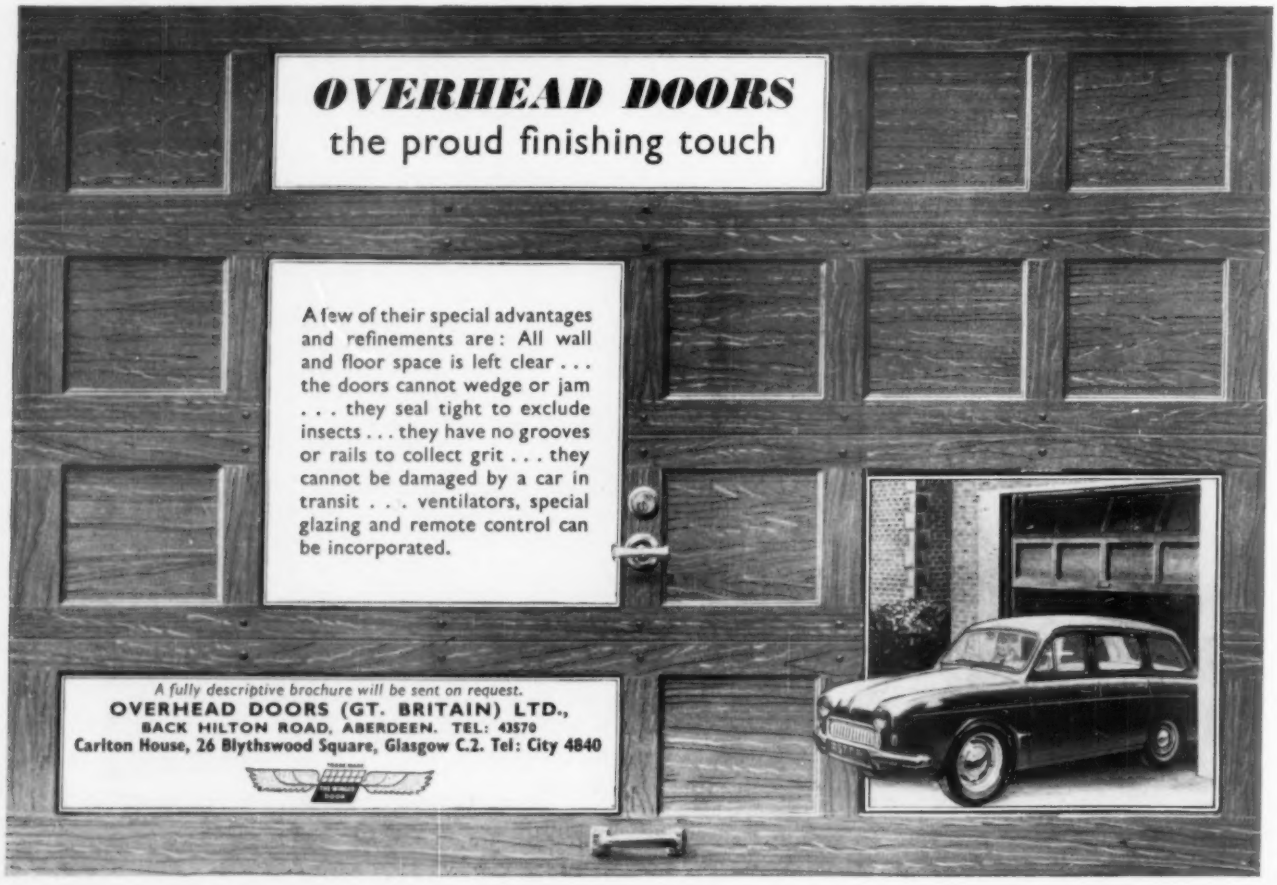
CONTRACTORS etc

Martins Bank, Marylebone Road, N.W.1. *Architects:* Sir Hugh Casson, Neville Conder & Partners. *General contractor:* Sir Robert McAlpine & Sons. *Sub-contractors: Joinery:* Shapland & Petter Ltd. *Terrazzo:* Alpha Mosaic & Terrazzo Co. *Signs:* Pearce Signs Ltd. *Lift:* Hammond & Champness Ltd. *Windows:* Williams & Williams Ltd. *Acoustics:* Hermeseal Acoustics Ltd. *Metalwork:* Grundy Arnatt Ltd., Courtney Pope Ltd., H. & C. Davis Ltd. *Ceiling:* Dampa. *Flooring:* Korkoid Decorative Floors. *Marble:* Walter W. Jenkins & Co. *Venetian blinds:* J. Avery & Co. *Veneers:* William Mallinson & Sons. *Night safe:* Chubb & Son's Lock & Safe Co. *Clocks:* Baume & Co. *Light fittings:* Frederick Thomas & Co. *Carpet:* Afia Ltd. *Furnishing:* Catesbys Contracts & Export, Conran Contracts, Hille of London Ltd.

Office Building, Manchester Square, W.1. *Architects:* Gollins, Melvin, Ward & Partners. *General contractor:* Tersons Ltd. *Sub-contractors: Piling:* Cementation Ltd. *Mechanical and electrical services:* Matthew Hall Ltd. *Lifts:* Otis Elevator Co. *Windows:* Mellowes & Co. *Portland stone:* South Western Stone Co. *Granite panels:* Art Marble & Mosaic Co. *Special joinery:* Samuel Elliott (Reading) Ltd. *Sanitary goods:* Stitsons Sanitary Fittings Ltd. *Mosaic:* Alpha Mosaic & Terrazzo Co. *Terrazzo:* Art Pavements & Decorations Ltd. *Woodblock flooring:* Hollis Bros. *Ironmongery:* G. & S. Allgood, W. N. Froy & Son. *Garage sprinklers:* Mather & Platt. *Internal and external balustrading:* S. W. Farmer & Son. *Circular staircase:* Wessex Guild Ltd. *Suspended ceilings:* J. Avery & Co. *Precast granolithic paving:* F. Bradford & Co. *Brickwork:* Richard Parton Ltd. *Slate copings:* Setchell & Sons. *Domlights:* T. & V. Ide Ltd. *Cradle suspension:* Cradle Runways Ltd. *Special stainless steel cladding:* Grundy Arnatt (Teddington) Ltd. *Lobby lighting:* R. & A. G. Crossland Ltd., Courtney Pope (Electrical) Ltd. *Tank room cladding:* Robertson Thain Ltd.

Services Buildings, London Zoo. *Architect:* F. A. P. Stengelhofen. HOSPITAL AND QUARANTINE STATION: *General contractor:* Rush & Tomkins Ltd. *Sub-contractors: Structural steelwork:* C. A. & A. W. Haward Ltd. *Reconstructed stone:* Atlas Stone Co. *Laboratory fittings:* Baird & Tatlock London Ltd. *Heating and ventilating:* Barret & Wright Ltd. *Lift:* Bennie Lifts Ltd. *Door tracks:* British Trolley Track Co. *Ironmongery:* James Gibbons Ltd. *Cold storage:* J. & E. Hall Ltd. *Remote control gear to den doors:* C. A. & A. W. Haward Ltd. *Aluminium roof:* Industrial Engineering Ltd. *Aluminium windows:* James Gibbons Ltd. *Handrails:* Marley Tile Co. *Flush and special den doors:* Veneercraft Ltd. WORKS DEPARTMENT: *General contractor:* Marshall Andrew & Co. *Sub-contractors: Reinforced concrete structure:* Diespeker & Co. *Ironmongery and aluminium windows:* James Gibbons Ltd. *Storage racks, spiral staircase and locker room hanging rail:* C. A. & A. W. Haward Ltd. *Heating and ventilating:* Hope's Heating & Engineering Ltd. *Sliding door gear:* E. Hill Aldam & Co. *Granolithic floors:* Prodorite Ltd. *Wood-wool slabs:* Thermacoust Ltd. *Incinerator:* The Incinerator Co. SUPPLIES DEPARTMENT: *General contractor:* Yeomans & Partners Ltd. *Sub-contractors: Covered way (structural steelwork):* The Derry Engineering Co.; *(roof decking):* William Briggs & Sons. *Bricks:* Cape Building Products Ltd. *Reinforced concrete structure:* Diespeker & Co. *Roof lights:* Faulkner, Greene & Co. *Ironmongery and aluminium windows:* James Gibbons Ltd. *Refrigeration plant:* J. & E. Hall Ltd. *Special louvred doors, spiral staircase:* C. A. & A. W. Haward Ltd. *Flush doors and joinery doors:* Hitchins Flush Woodwork Ltd. *Heating and ventilating:* Hope's Heating & Engineering Ltd. *Internal joinery fittings:* Knowles Woodworking Ltd. *Cagework and balcony rails:* Light Steelwork (1925) Ltd. *Roller shutter:* Potter Rax Ltd. *Granolithic floors:* Stuart's Granolithic Co. *Platform hoist:* Vaughan Lift Engineering Ltd. GARAGE: *General contractor:* Yeomans & Partners Ltd. *Sub-contractors: Structural steelwork:* The Derry Engineering Co. *Roller shutters:* Haskins Roller Shutters.

Office building, Bournemouth. *Architects:* Farmer & Dark. *General contractor:* James Drewitt & Son. *Sub-contractors: Reinforced concrete frame:* Mears Bros. (Contractors) Ltd. *Precast concrete staircases and vitreous mosaic wall finish:* Art Pavements & Decorations Ltd. *Bituminous felt roofing:* Permanite Ltd. *Suspended ceiling:* Hermeseal Acoustics Ltd. *Internal partitions:* Holoplast Ltd. *Venetian blinds:* J. Avery & Co. *Curtain walling:* Williams & Williams Ltd. *Vinyl asbestos flooring and rubber tile flooring:* Marbolith Flooring Co. *Heating installation:* James Combe & Son. *Electrical installation:* Aish & Co. *Zinc roofing:* Holloway Metal Roofs Ltd. *Plenum chamber steelwork:* Bourne Steel Ltd. *Lettering:* Ward & Co. *Landscape gardening:* Stewart & Son. *Facing bricks:* Charles Mitchell & Sons. *Strong room door:* Chubb & Sons. *Aluminium blind boxes:* Ford Vincent & Co. *Dome roof lights:* James Clark & Eaton Ltd. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Sliding door gear:* P. C. Henderson & Son. *Under floor ducting:* The Key Engineering Co. *Cloakroom fittings:* James Seiber Equipment Co. *Staircase balusters:* Savack Service Ltd. *Steel cycle holders:* Le Bas Tube Co. *Street light standards:* The North Midlands Engineering Co. *Circular concrete roof lights:* Sharp Jones & Co. *Concrete (structural) waterproofer:* Tretol Ltd.


OVERHEAD DOORS
the proud finishing touch
A few of their special advantages and refinements are: All wall and floor space is left clear . . . the doors cannot wedge or jam . . . they seal tight to exclude insects . . . they have no grooves or rails to collect grit . . . they cannot be damaged by a car in transit . . . ventilators, special glazing and remote control can be incorporated.
A fully descriptive brochure will be sent on request.
OVERHEAD DOORS (GT. BRITAIN) LTD.,
BACK HILTON ROAD, ABERDEEN. TEL: 43570
Carlton House, 26 Blythswood Square, Glasgow C.2. Tel: City 4840

Ibstock Facing Bricks

were used for the new Science Extension at Bryanston School, Dorset

Architects: Architects Co-Partnership.
General Contractors: D. Singleton & Son, Ltd.
Bricks: 2½" Hand-made Multi-Golden Brown Sandstocks.

Whether it be an extension or a whole building, there is an Ibstock Facing Brick which will blend in naturally with the existing structures.

Architects everywhere specify Ibstock Facing Bricks for durability and appearance.

Most facing bricks are now in short supply and all orders should be placed as far ahead as ever possible. We are, of course, anxious to receive enquiries for future deliveries and shall be happy to make reservations against architects' specifications.

Send for samples and full details

Ibstock

FACING BRICKS

IBSTOCK BRICK & TILE COMPANY LIMITED, Ibstock near Leicester
London: B.R. Goods Depot, Wright's Lane, Kensington, W.8.

Telephone: Ibstock 591 (3 lines)
Telephone: Western 1281 (2 lines)

CRAWLEY NEW TOWN. Architect: H. S. Howgrave-Graham, A.R.I.B.A., A.M.T.P.I., *Chief Architect to The Crawley Development Corporation.*

100,204, 100,205, 100,206 – coo,
what A lot of windows –
all by Williams & Williams

The final neighbourhood unit Gossops Green—where wide use has been made of Williams & Williams projected windows — is the 9th and last of the neighbourhood units. It is nearly finished and is already partly occupied.

CRAWLEY NEW TOWN contains an established Town Centre, a flourishing Industrial Area, 9 neighbouring units, 53,000 prosperous inhabitants and well over 100,000 Williams & Williams windows. Steel windows and curtain walling on the Post Office, purpose made steel windows in the Town Centre and steel windows to B.S.S. made to a special size to meet the architects' requirements for the houses.

The birth of the Z range The 2′ module standard window was developed for the architects of the new towns. These Williams & Williams Z range windows at Northgate went up in 1950 — they were among the first in the country.

Tailor made standards Crawley New Town also saw the development of the now established 'CO' standard window — specially made to an intermediate height of 3′ 6″. These particular ones at Southgate were specially made by Williams & Williams for Crawley Development Corporation.

Standard factories too To bring in the small manufacturer — and so balance the economy of the area — small factories like this one were built to a standard design. Here Williams & Williams purpose made steel windows and Aluminex Patent Glazing have been used for the sidewalls and Williams & Williams roof lights supply daylight overhead.

Curtain Walling on the Post Office Williams & Williams curtain walling with yellow in-fill panels give a light, bright look to the new Post Office, situated just outside the Town Centre.

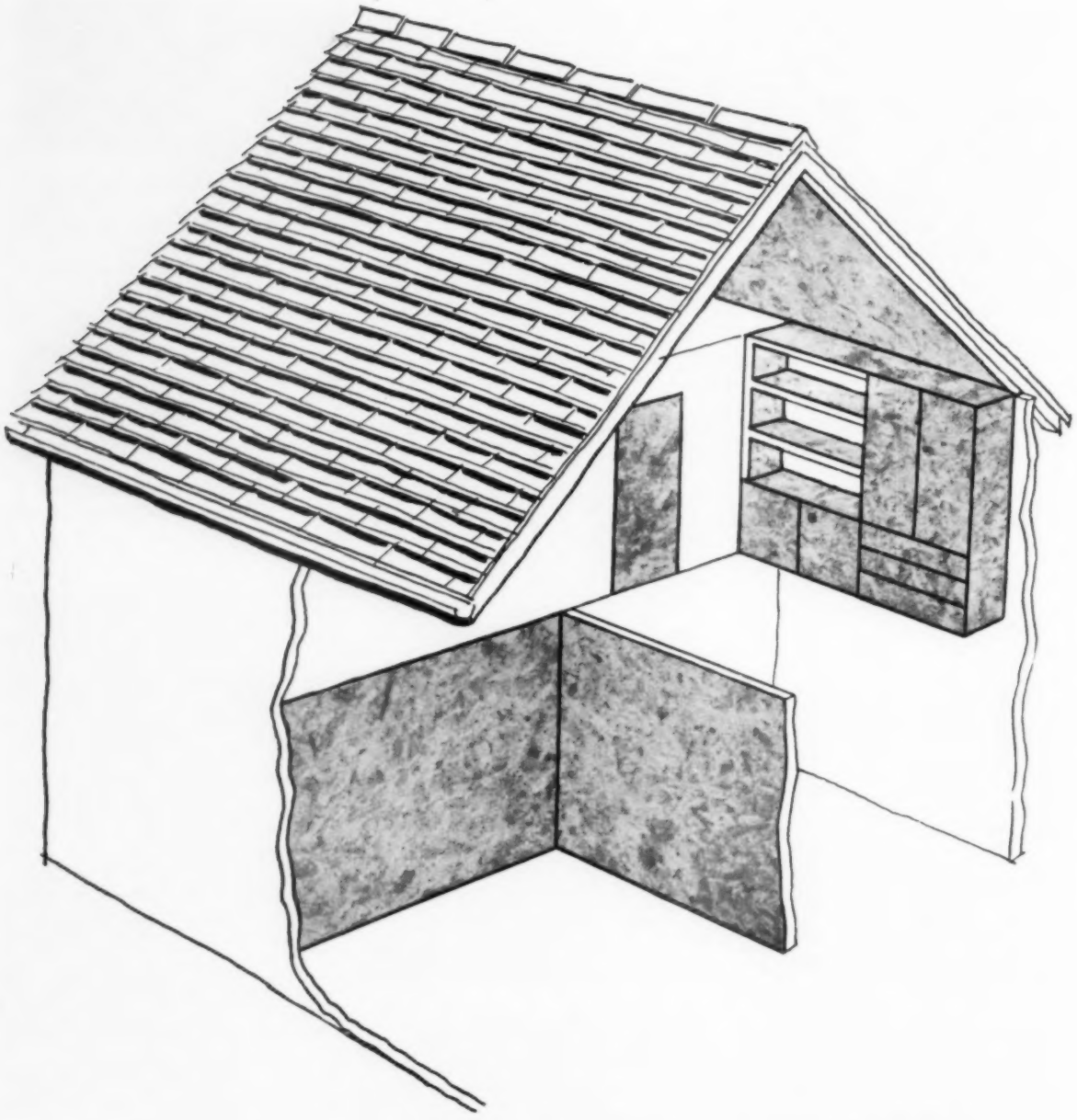
The Williams & Williams phone boxes. The famous phone boxes in the Town Centre were specially made by Williams & Williams to the design agreed between the architects and the G.P.O.

A new way with dustbins Standard equipment throughout Crawley are these dustbin units. The louvred steel front opens on to a steel box which has a hinged lid and contains the dustbin. Rubbish is disposed of from inside the kitchen and collected from outside the house. Specially designed and made for the Crawley Development Corporation by Williams & Williams.

forward looking building products **WILLIAMS & WILLIAMS**

Williams & Williams make steel windows of every description, ALOMEGA and other aluminium windows, ROFTEN movable steel partitioning, ALUMINEX patent glazing, WALLSPAN curtain walling and many other products, all of which can be seen at our permanent exhibition at 36, High Holborn, London, W.C.1.

WILLIAMS & WILLIAMS, RELIANCE WORKS, CHESTER · WILLIAMS HOUSE, 37-39 HIGH HOLBORN, LONDON, W.C.1



the board you can trust — to do so many jobs, so well

weyroc

one of the world's great man-made materials

THE AIRSCREW COMPANY & JICWOOD LTD
WEYBRIDGE · SURREY
TELEPHONE: WEYBRIDGE 2242/7

WPS 85

ADAMSEZ LTD, LONDON & SCOTSWOOD-ON-TYNE

LEAF "LOTUS" & STEM
DESIGNED BY ALAN ADAMS

Adamsez know sanitation from
A-Z

notes

BASIN AND PEDESTAL IN ONE PIECE
AVAILABLE IN WHITE, BRONZE AND OTHER COLOURS
DIMENSIONS: 24"x18" OVERALL x 31" HIGH
REGISTERED DESIGN No 894104
PATENT No 1741

dm

Specialist Contractors

for the B.B.C. new television centre in Wood Lane, to all main areas, i.e., timber panelling, ornamental metal and stainless steel, upholstered seating and general decorative finishes, etc.

Graham Dawbarn, Esq. C.B.E.
(Norman & Dawbarn)
in association with
M. T. Tudsbery, Esq., C.B.E.,
Consulting Civil Engineers to B.B.C.
Higgs & Hill Ltd.,
General Contractors.

Davies
SHOPFITTERS

ACOrn 3444

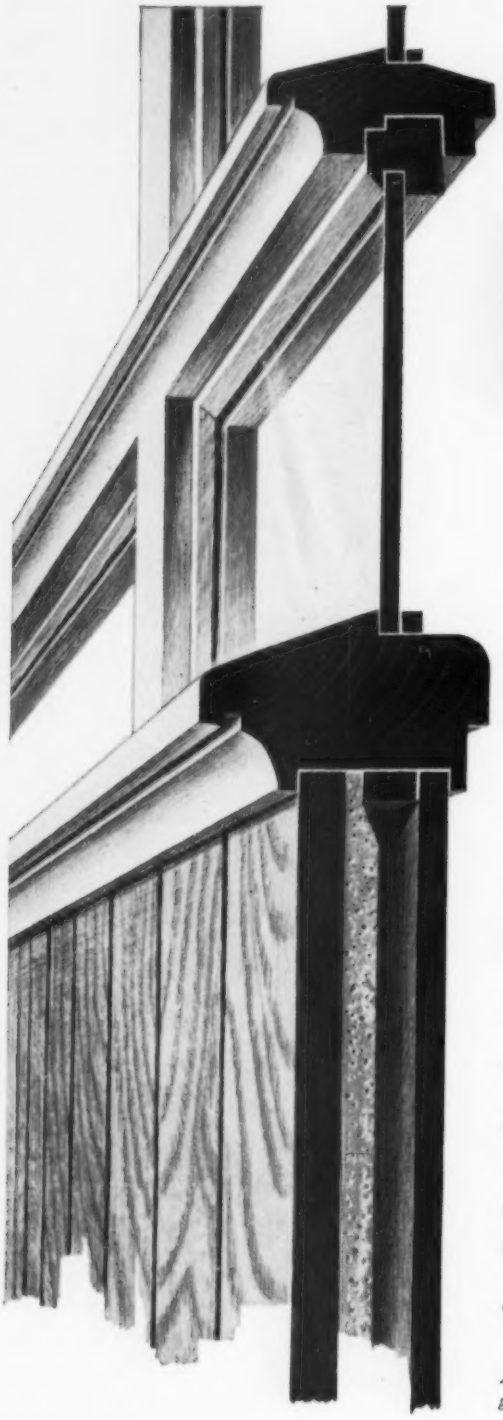
A. DAVIES & CO. (SHOPFITTERS) **LTD.**
HORN LANE, LONDON, W.3

DAWNAYS LIMITED STEELWORKS ROAD BATTERSEA SW11 TEL: BAT 2523
and at Welwyn Garden City Swansea Cardiff Norwich & Hull. Offices at Southampton Romford & Victoria Street SW1

dma

DAWNAYS

specialists in the design
fabrication & erection of
STEELWORK



For curtain walling

NOTHING BUT WOOD

gives you such design scope

. . . together with all these important advantages.

- Lowest cost. Wood is cheaper as a curtain wall framing and cladding material than other comparable types.
- Lends itself readily to prefabrication off-site, is easily moulded and shaped. Light in weight. Quickly and easily erected.
- High thermal insulation reducing heat loss.
- High resistance to corrosion and decay in polluted and marine atmospheres.
- Richness and variety in natural colour and texture. Contrasts pleasantly with brick and masonry.

A booklet on the use of timber for curtain walling, illustrating specific examples and giving detailed design data, is available on request. May we send you a copy?

For advice on design and specification for timber curtain walling

CONSULT TDA

ISSUED BY THE TIMBER DEVELOPMENT ASSOCIATION LIMITED · 21 COLLEGE HILL · LONDON EC4
and branches at Birmingham, Bristol, Glasgow, Leeds and Manchester

TGA TD168

STEEL GIVES STRENGTH

Colvilles have built up a reputation as suppliers of all types of Structural Steel - Light and Heavy Sections, Joists and Plates - to all specifications. Colvilles can supply a range of High Strength Steels under our DUCOL series with a minimum yield strength of 23 tons per square inch and upwards.
These special steels are in regular production and can be supplied in accordance with our rolling programme.

COLVILLES
FITNESS FOR PURPOSE STEELS

COLVILLES LIMITED 195 West George St., Glasgow C.2.

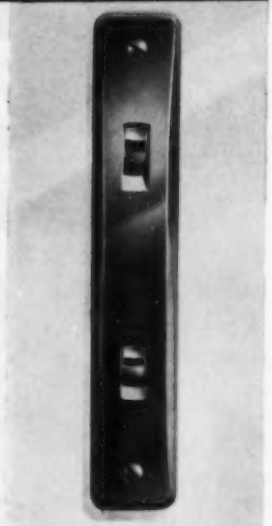
Mutac Clipper switches have been accepted by the Council of Industrial Design for Design Index—so architects, consulting engineers and contractors are choosing them for their good looks, as well as for their functional efficiency and easy assembly.

just a minute!

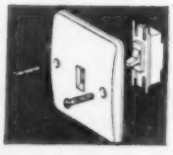
that's all it takes to instal the new

'MUTAC CLIPPER'

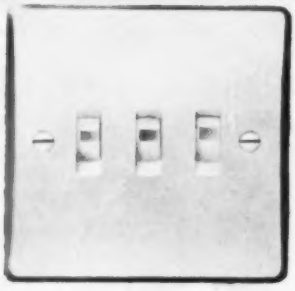
ARCHITRAVE SWITCH ASSEMBLY



Take either a 'Mutac Clipper' plaster depth or architrave switch plate and select the required switch, bell push or pilot light. Simply press home the spring clip with a small screwdriver and a fixed plate assembly is ready for installation. Available in 1, 2 or 3 gang for plaster depth and 1 and 2 gang for architrave. 'Mutac Clipper' switch assemblies will cut installation costs and save time as additions and alterations can be made with the minimum of effort.



PLASTER DEPTH SWITCH ASSEMBLY



G.E.C. INSTALLATION EQUIPMENT GROUP

THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2

SWITCH AND FUSE GEAR
H.R.C. FUSES
OVERHEAD BUSBARS
RISING MAINS
CONDUIT
PIRELLI GENERAL CABLE
CABLE TRUNKING
UNDER-FLOOR CABLE DUCTS
ELECTRIC WIRING ACCESSORIES
BELLS

how is a design born?

There are no tools or materials for creating a design. You can't make an idea with a machine or turn out original designs on a production line. The only basics are a man's imagination, experience—and a certain indefinable something. And of course good designs are very hard to come by.

But we believe all the everflex vinyl coated fabrics designs are good. Just take a look at 'MAZE' and 'CAPRICE' illustrated here. They are outstanding. But *how* were these designs born? Only Edward Pond who designed them can tell you.

Everflex is widely used for upholstery, wall covering, case covering, interior decoration, on domestic appliances and a million other things. Write now for samples and details.

everflex VINYL COATED FABRICS

Bernard Wardle (everflex) Ltd., Caernarvon, North Wales. Caernarvon 3243

26 Berners Street, London W.1. LANgham 8451

where weight matters

LYTAG

Lightweight aggregate gives...

Maximum workability

LYTAG gives greater workability for a particular mix than any other lightweight aggregate, because its spherical particles present the minimum surface area to be wetted.

Minimum shrinkage and high early strength

The low water contents of LYTAG concretes lead to reduced drying shrinkages and give high early strengths. Surface finishes obtained on precast concrete units are smooth and pleasing.

High fire resistance with low 'U' values

The combustible content of LYTAG is less than ½%. It will withstand temperatures of up to 1,000°C without damage. At the same time, it provides a 'U' value well below that of ordinary concrete. For example, the 'U' value of a 6″ LYTAG structural concrete element would be less than a half that of the same element in dense concrete.

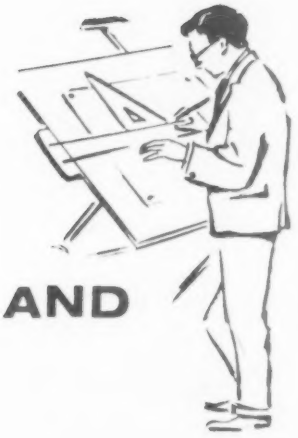
60% Air—100% efficient

LYTAG is produced from pulverised fuel ash by a carefully controlled sintering process. Spherical in shape, it has a slightly roughened surface so providing an excellent key for the adhesion of cement.

Technical literature covering all aspects of LYTAG will be forwarded on request. Write to:

LYTAG LIMITED MANOR WAY, BOREHAM WOOD, HERTFORDSHIRE. Telephone Elstree 2854. A LAING COMPANY

Plan with modernfold



When planning room partitions use Modernfold Expanding Walls and Doors. Economical, simple to install, and contemporary in appearance. Modernfold are the ideal answer whether for the Board Room, Office Blocks, Schools, Halls, or the private home. There is a wide choice of colours in a superb heavy quality PVC leathercloth, which gives Modernfold a most luxurious appearance.
No floor track of any nature is required.
Modernfold are completely draughtproof.

AND USE ALL THE SPACE

Where reduction of sound is a particular problem the special "Soundmaster" Modernfold is available.
Details of scientific tests can be supplied.
Modernfold open and shut at the touch of a finger, are available as single doors, pairs of doors, fully floating or curved doors. Include Modernfold, the contemporary method of room division in *your* plan.

Taylor Woodrow Ltd., Canteen, Ruislip Road, Southall. Architects: Elliott, Cox & Partners, F.R.I.B.A., F.R.I.C.S., L.R.I.B.A., A.I.A.S., A.R.I.B.A.

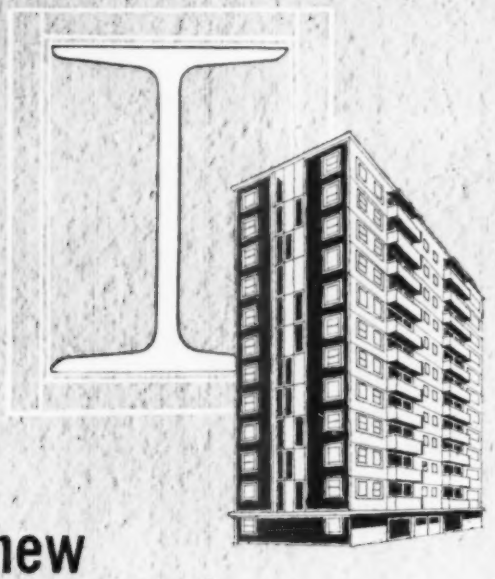
WALLFOLD by Modernfold

In quantity flow production, this great new range of expanding walls and doors, through their wide range of standard sizes makes them ideal for use in housing estates, etc. Covered in P.V.A. Leathercloth which can be painted with recommended emulsion paint.

EXPANDING WALLS AND DOORS

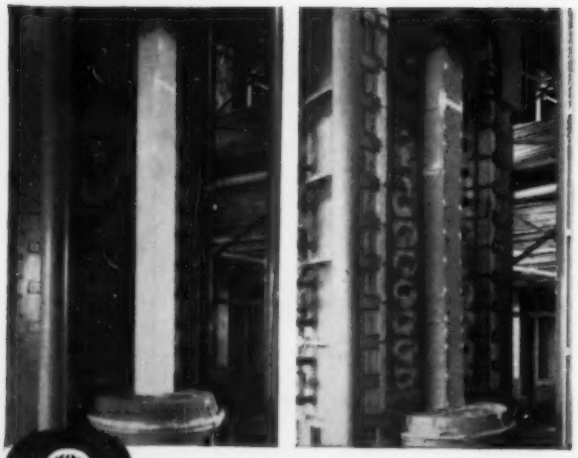
HOME FITTINGS (GREAT BRITAIN) LTD.

DEPT. A.R.9., VICTORIA WORKS,
HILL TOP, WEST BROMWICH, STAFFS.
Telephone : Wednesbury 0761



Asbestolux...

and the new low-cost column casing system



CAPE ASBESTOLUX

THE NON-COMBUSTIBLE ASBESTOS INSULATION BOARD

An entirely new design for the casing of structural steel with Asbestolux was recently tested at the Fire Research Station, Borehamwood. Two hours fire protection was provided by a simple casing of ¾" Asbestolux. The casing is exceptionally easy and economical to erect and ready for immediate decoration.
Please write for a copy of the test report and technical data sheet on this construction.

Manufactured by CAPE BUILDING PRODUCTS LIMITED · COWLEY BRIDGE WORKS · UXBRIDGE · MIDDLESEX
Telephone: Uxbridge 4313 Telex: 23471/UXB
Also at: Manchester, Birmingham, Glasgow, Newcastle
A subsidiary of The Cape Asbestos Company Limited
AX57.H

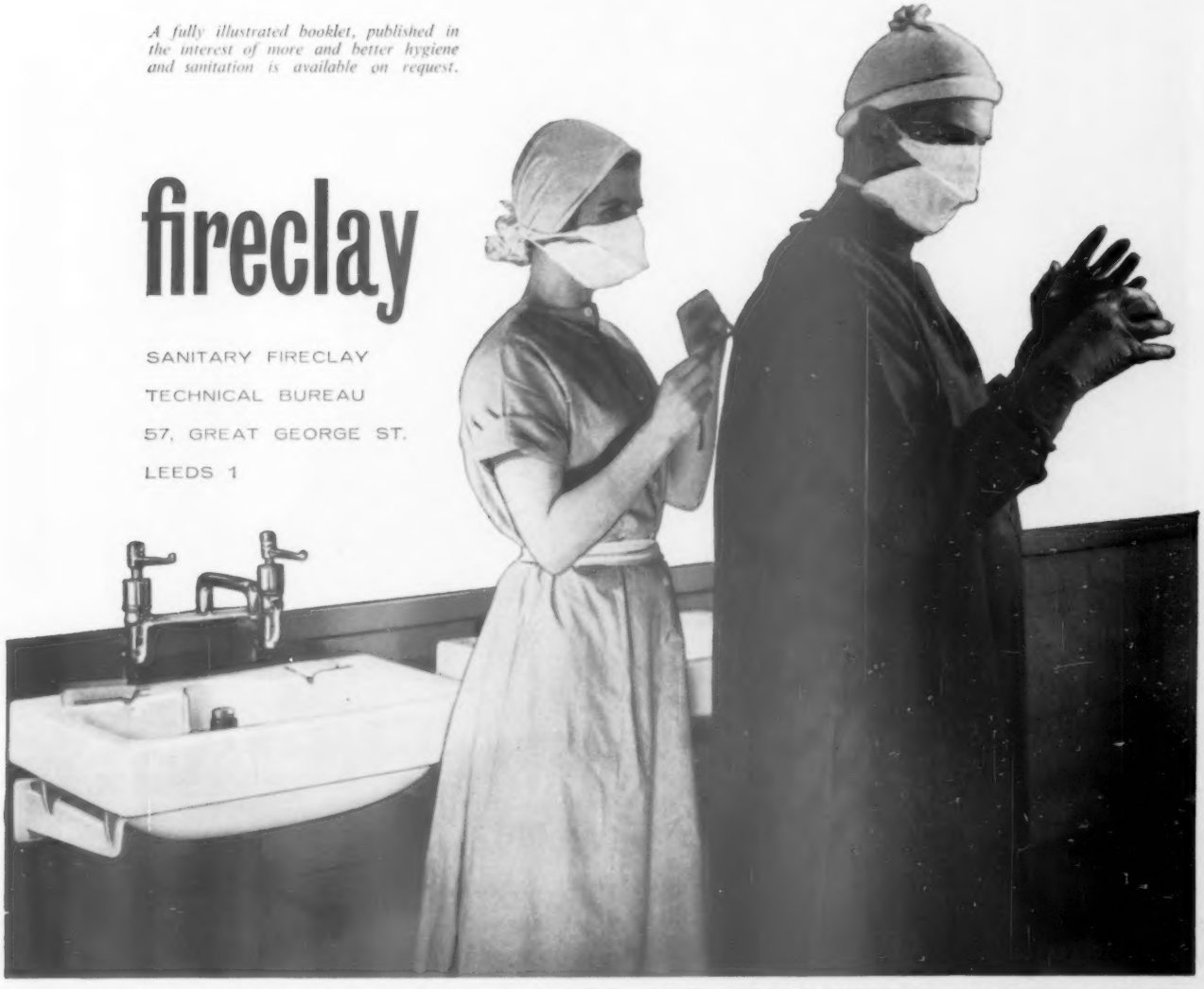
KEEP IT **CLEAN**

In the modern hospital, vital considerations of hygiene render it imperative that sanitary installations of any kind should be the finest obtainable, reflecting all the qualities that are inherent in Ceramic **Glazed Fireclay.** Ceramic **Glazed Fireclay** not only **looks** clean — it **is** clean. White is the enemy of dirt. The gleaming white surface of **Glazed Fireclay** is impervious to dirt and grease, resistant to acids, alkalis, staining, scratching and abrasion. With its strength, solidity and sturdiness, its resistance to extremes of heat and cold, its capacity to stand up indefinitely to the most drastic wear and tear, the need for costly replacements is virtually eliminated. In Ceramic **Glazed Fireclay** you have quality and durability. And in the long run you have economy, too.

A fully illustrated booklet, published in the interest of more and better hygiene and sanitation is available on request.

fireclay

SANITARY FIRECLAY
TECHNICAL BUREAU
57, GREAT GEORGE ST.
LEEDS 1



SPECIFY SANITARY FIRECLAY WARE FOR **PERMANENT** SATISFACTION

the customer comes first . . .

In a "Pyrotenax" wired store, thought for the customer is shown to go a long way beyond what can be seen at the counters. First and foremost, "Pyrotenax" is inherently safe. Then it has all the qualities listed below. Small wonder that "Pyrotenax" has been the considered choice of progressive architects, electrical contractors, owners and industrialists for over twenty years. It is the M.I.C.C. cable with long experience behind it. It is the cable for lasting confidence.

PROTECTED BY EXPERIENCE
Pyrotenax
m.i. COPPER COVERED CABLE

non-fire causing—heat resisting—
moisture-proof—non-ageing—
rust-proof—safe against overload—
resistant to mechanical maltreatment—
resistant to noise transmission—

there is no substitute for experience

PYROTENAX LIMITED · HEBBURN-ON-TYNE · Telephone: Hebburn 83-2244/8

LONDON: *VICtoria 3745* · **BIRMINGHAM**: *Midland 1265* · **MANCHESTER**: *Deansgate 3346/7* · **LEEDS**: *Leeds 27826* · **GLASGOW**: *City 3641/2* · **CARDIFF**: *Cardiff 23689*

GD 136

BRADY REG'D. for every opening

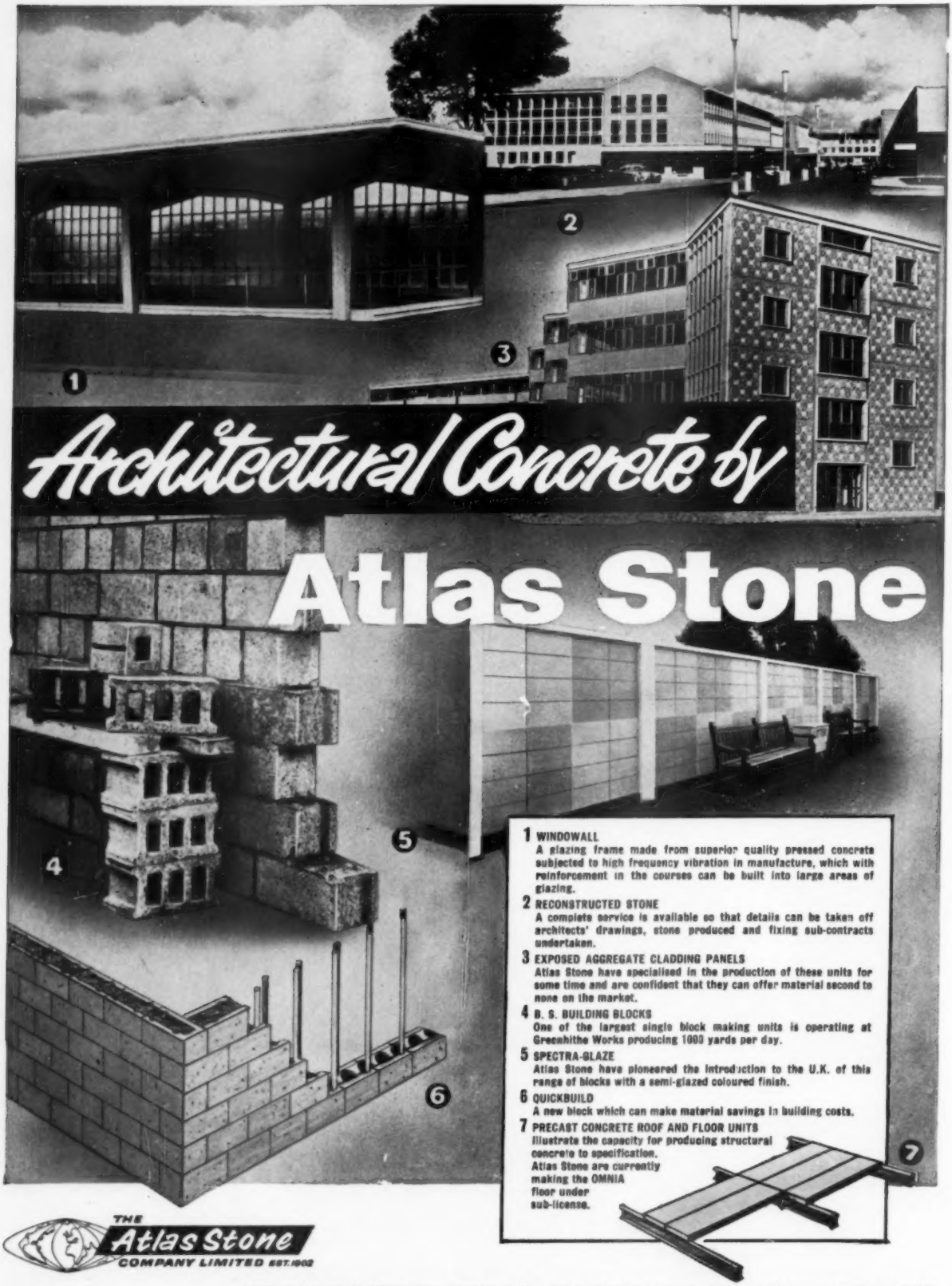
THE DOORS COMMANDING THE WORLD'S LARGEST SALE

Send for illustrated leaflets **SDU/21**

G. Brady & Company Limited, Manchester 4. Telephone COLlyhurst 2797/8/9 ***and at London, Birmingham, Glasgow, Montreal, Port Credit, Hong Kong.***

BRADY FOR EVERY OPENING: BRADY ROLLING DOORS IN STEEL, WOOD AND ALUMINIUM · SLIDING SHUTTER DOORS GRILLES IN STEEL, ALUMINIUM OR NYLON · UP AND OVER DOORS · FIREPROOF DOORS · COLLAPSIBLE GATES · SLIDING DOOR GEAR RUBBER DOORS · ORNAMENTAL IRONWORK · ALSO MANUFACTURERS OF BRADY LIFTS.

Steve & Bowden



1 WINDOWALL
A glazing frame made from superior quality pressed concrete subjected to high frequency vibration in manufacture, which with reinforcement in the courses can be built into large areas of glazing.

2 RECONSTRUCTED STONE
A complete service is available so that details can be taken off architects' drawings, stone produced and fixing sub-contracts undertaken.

3 EXPOSED AGGREGATE CLADDING PANELS
Atlas Stone have specialised in the production of these units for some time and are confident that they can offer material second to none on the market.

4 B. S. BUILDING BLOCKS
One of the largest single block making units is operating at Greenhithe Works producing 1000 yards per day.

5 SPECTRA-GLAZE
Atlas Stone have pioneered the introduction to the U.K. of this range of blocks with a semi-glazed coloured finish.

6 QUICKBUILD
A new block which can make material savings in building costs.

7 PRECAST CONCRETE ROOF AND FLOOR UNITS
Illustrate the capacity for producing structural concrete to specification.
Atlas Stone are currently making the OMNIA floor under sub-license.

THE Atlas Stone COMPANY LIMITED EST. 1902

Artillery House, Artillery Row, London, S.W.1. Tel.: ABBey 3081-2-3-4. Grams.: Atlastonco, Sowest London

Works at: GREENHITHE . STROOD . MELDRETH . CAMBRIDGE . SHORNE . RYE (SUSSEX) . GREAT YARMOUTH

TEMPLETON

Cardonald 1/3304

Contract Carpeting

The TEMPLETON contract range offers you the widest scope available today in carpeting for hotels, restaurants, cinemas, theatres—anywhere in fact that requires distinctive designs and good qualities.

TEMPLETON designers and craftsmen combine to produce the finest designs, colours and qualities in contract carpeting—designs which will tone with modern furnishings and decor ; qualities to meet the needs of heavy wear and tear in all public buildings.

TEMPLETON Weavers of the finest carpets in the world

JAMES TEMPLETON & CO LTD GLASGOW London Manchester Leeds Birmingham

"... and, of course, structural steelwork by

WRIGHT ANDERSON"

The modern Steel-framed building has now become a more profitable and economical investment than ever—and when building in steel is the project, Wright Anderson are the people to consult.
Wright Anderson facilities and wide experience are at your service right from the drawing board stage — a discussion with their consultants is always time well spent.

WRIGHT ANDERSON & CO LTD
CONSTRUCTIONAL ENGINEERS & BRIDGE BUILDERS

G.P.O. Box 2, Gateshead, Co. Durham • Tel: Gateshead 72246 (3 lines)
Grams: "Construct Gateshead"
LONDON OFFICE: 4, St. Georges St., London, W.1. • Tel: MAYfair 2394

Contractors to H.M. Government Departments • Central Electricity Authority • National Coal Board Atomic Energy Authority and Crown Agents for Overseas Governments and Administrations

P.4121

Supermarket, Fine Fare Ltd., Bedford.
Architect: B. R. Archer, A.R.I.B.A., A.A. Dip.

You are in good company when you specify

Council Flats, Water Lane, Stratford, E.15.
Architect: Thomas E. North, O.B.E., F.R.I.B.A., Dist. T.P., M.T.P.I.

Institute of Marine Engineers
Memorial Building, Fenchurch St., E.C.3.
Architects: Ronald Ward & Partners.

Royal Mutual Insurance Soc. Ltd.,
Landsdown, Bournemouth.
Architect: H. Bramhill, F.R.I.B.A., Dip. Arch. (Livpl.)

The Research Building, International Computers and Tabulators Ltd.
Architects: Ley, Colbeck & Partners, F/F.R.I.B.A.

TALBOT PAINTS

TALBOTEEN *Gloss Enamel*
TALBOTEEN *Semi-Gloss*
TALBOTEEN *Satin Wall Finish*
PERVELAC *Emulsion Paint*
TALBOT *Cement Seal*
COPON *Epoxy Resin Base Coatings*

E. WOOD LTD. *Architects Service Dept.*
18 LONDON STREET · LONDON · E.C.3 *Telephone ROYAL 8511*
Factory: Talbot Works, Stanstead Abbotts, Hertfordshire, Stanstead Abbotts 174-5-6

Branch Offices and Depots throughout the United Kingdom

BOOTH Steel Rolling Shutters

The photograph shows one of a large order for shutters supplied to Canadian Pratt & Whitney Aircraft Co. Ltd. This shutter measures 22ft. 6in. high × 16ft. 8in. wide. Designed for external openings these shutters provide complete protection against the most severe climatic conditions both of heat and cold. Full technical details are supplied in our illustrated catalogue, copies available free on request.

JOHN BOOTH & SONS (BOLTON) LTD.,
HULTON STEELWORKS
BOLTON, LANCS.
Telephone: Bolton 1195

London Office: 26 Victoria Street, Westminster, S.W.1.
Telephone: Abbey 7162

Agents:—

A. E. KIDSON & SON,
Normanhurst Chambers, St. James' Road,
Dudley, BIRMINGHAM.

F. & M. FAIRMAN,
93 Hope Street, GLASGOW, C.2.

O'GORMAN-QUIN & CO. LTD.,
26 Garville Avenue, Rathgar, DUBLIN.

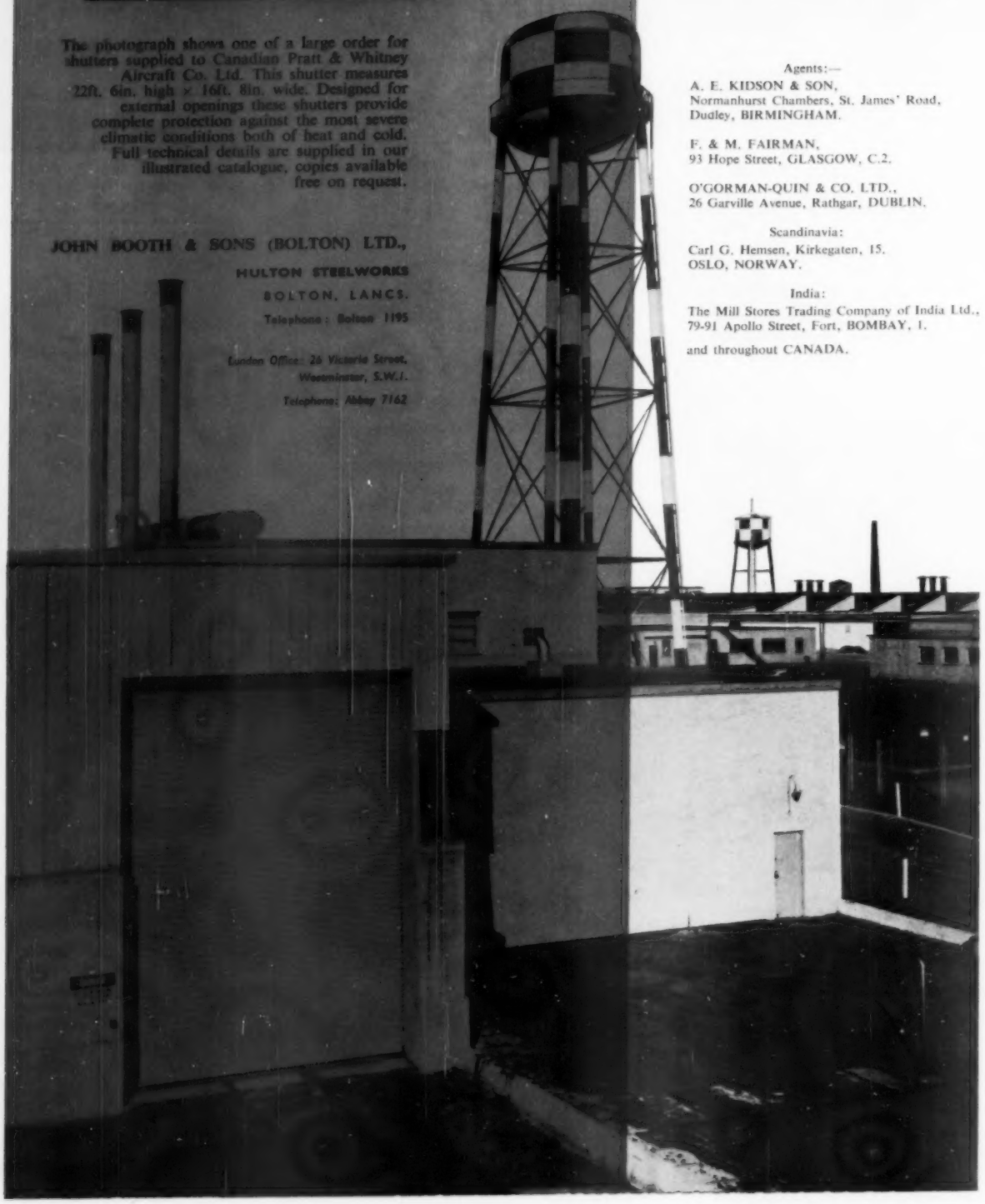
Scandinavia:

Carl G. Hemsen, Kirkegaten, 15.
OSLO, NORWAY.

India:

The Mill Stores Trading Company of India Ltd.,
79-91 Apollo Street, Fort, BOMBAY, 1.

and throughout CANADA.



Western red cedar

With a tree of great age (1,200 years is not unusual) a timber of enormous resilience may be taken for granted. Yet Western Red Cedar is also the lightest of all commercial softwoods and is unsurpassed in its easy workability. Free from pitch or resin, highly resistant to decay, acids and alkalies, handsome both in texture and colour – few timbers combine so many rare qualities, or provide a better material for so many different uses. Roof decking, exterior cladding, interior panelling, door and window framing, moulding and partitioning, are just some examples. *For further information* contact the Commercial Secretary (Timber), Canada House, Trafalgar Square, London SW1.

West Coast woods
give shape
to an exciting
architectural design

Clear view

WITH CLEAR PASSAGE

"STEELPLATE"

Accordion

TOUGHENED GLASS DOORS & ASSEMBLIES

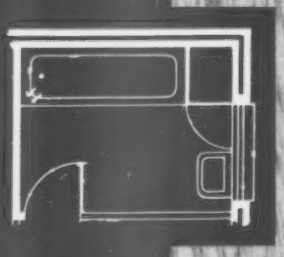
Give your premises the 1970 look with **"STEELPLATE" ACCORDION** toughened glass doors. Combining all the advantages of normal swing doors with those of sliding doors. When fully extended **"STEELPLATE" ACCORDION** doors leave the entire opening clear, fully closed they form an all-over glass window to your premises with normal swing doors and there are any number of intermediate positions.

Technical literature available on request

STEELE'S (CONTRACTORS) LIMITED

GLASS WORKS, STAMFORD RD., LONDON, N.1. Phone: CLIssold 1121 *(PBX)*

For design,
finish . . .
choice of sizes
and colours,
Architects
need look
no further than
Bilston, the
Bath Specialists



ATLANTA
MAGNA
CRESTA
MARINA
MERMAID
BERMUDA
PRINCESS

BILSTON

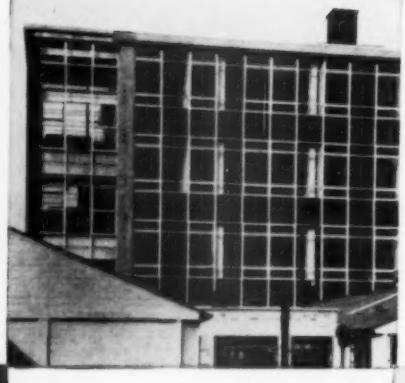
Illustrated literature sent on request

Bilston Foundries Ltd Bilston Staffordshire

ROYAL TECHNICAL COLLEGE
SALFORD
Architect:
G. Noel Hill

HATFIELD
SECONDARY TECHNICAL SCHOOL
Architects:
Easton & Robertson

READING TECHNICAL COLLEGE
Architects:
Lanchester & Lodge



WORKINGTON COLLEGE
OF FURTHER EDUCATION
Architect:
John H. Haughan

POOLE COLLEGE
OF FURTHER EDUCATION
Architects:
Elder & de Pierro

THURROCK TECHNICAL COLLEGE
Architect:
H. Conolly

KEIGHLEY TECHNICAL COLLEGE
YORKS
Architect:
A. W. Glover

BASILDON
FRYERNS COUNTY SECONDARY
TECHNICAL SCHOOL
Architect:
Denis Clarke Hall

OXFORD
COLLEGE OF TECHNOLOGY,
ART & COMMERCE
Architect:
E. G. Chandler

BOURNEMOUTH
MUNICIPAL COLLEGE
Architect:
John Burton

DUNCAN OF JORDANSTONE
COLLEGE OF ART
DUNDEE
Architect:
James Wallace

CAMBRIDGESHIRE
TECHNICAL COLLEGE
& SCHOOL OF ART
Architect:
Alister MacDonald

LONGLANDS COUNTY COLLEGE
MIDDLESBROUGH
Architect:
K. J. Caton

N. BEDS. COLLEGE
OF FURTHER EDUCATION
BEDFORD
Architect:
S. Vincent Goodman

QUEEN MARY COLLEGE
MILE END ROAD
Architects:
Playne & Lacey

N.E. ESSEX
TECHNICAL COLLEGE
COLCHESTER
Architect:
H. Conolly

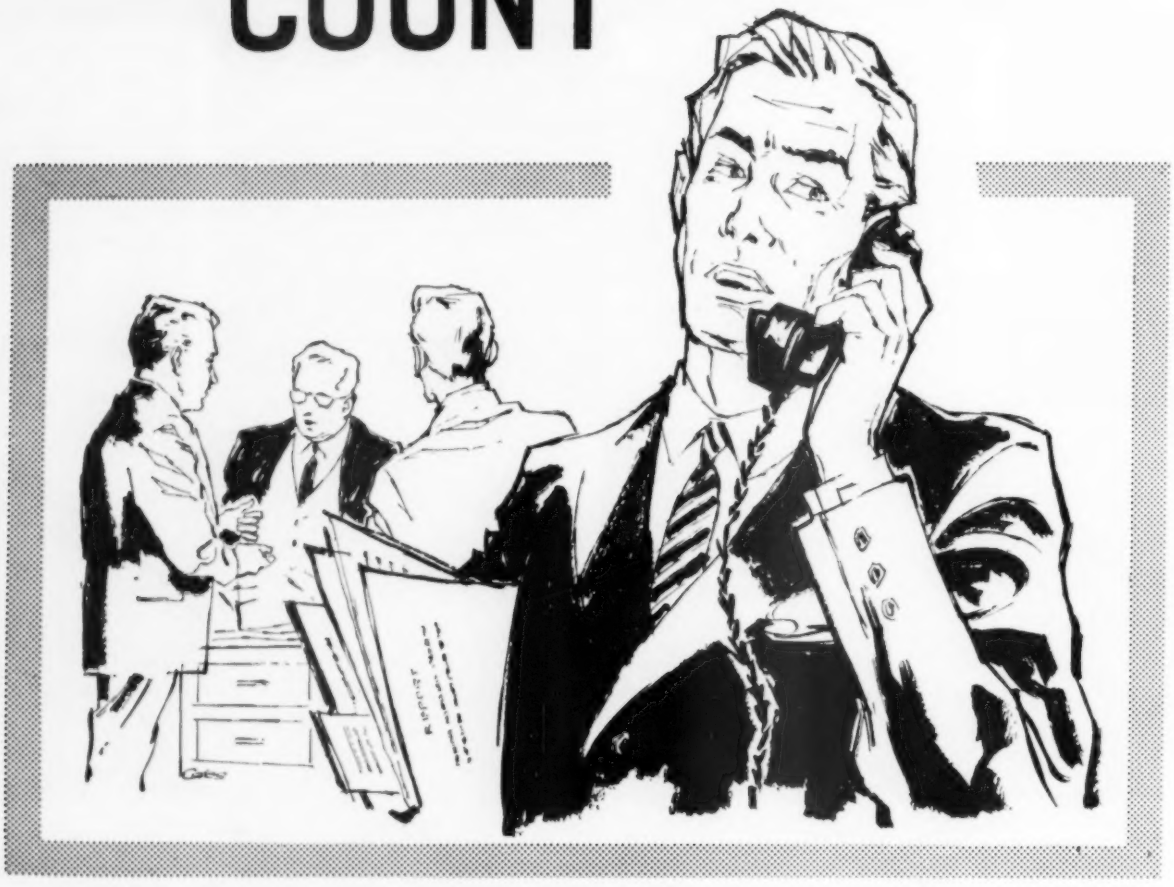
R.N. ENGINEERING COLLEGE
PLYMOUTH
Architects Department, M.O.W.

Modern Technical Colleges build with...

CRITTALL WINDOWS

THE CRITTALL MANUFACTURING CO. LTD · BRAINTREE · ESSEX · BRANCHES & DEPOTS THROUGHOUT THE COUNTRY

WHEN DECISIONS COUNT



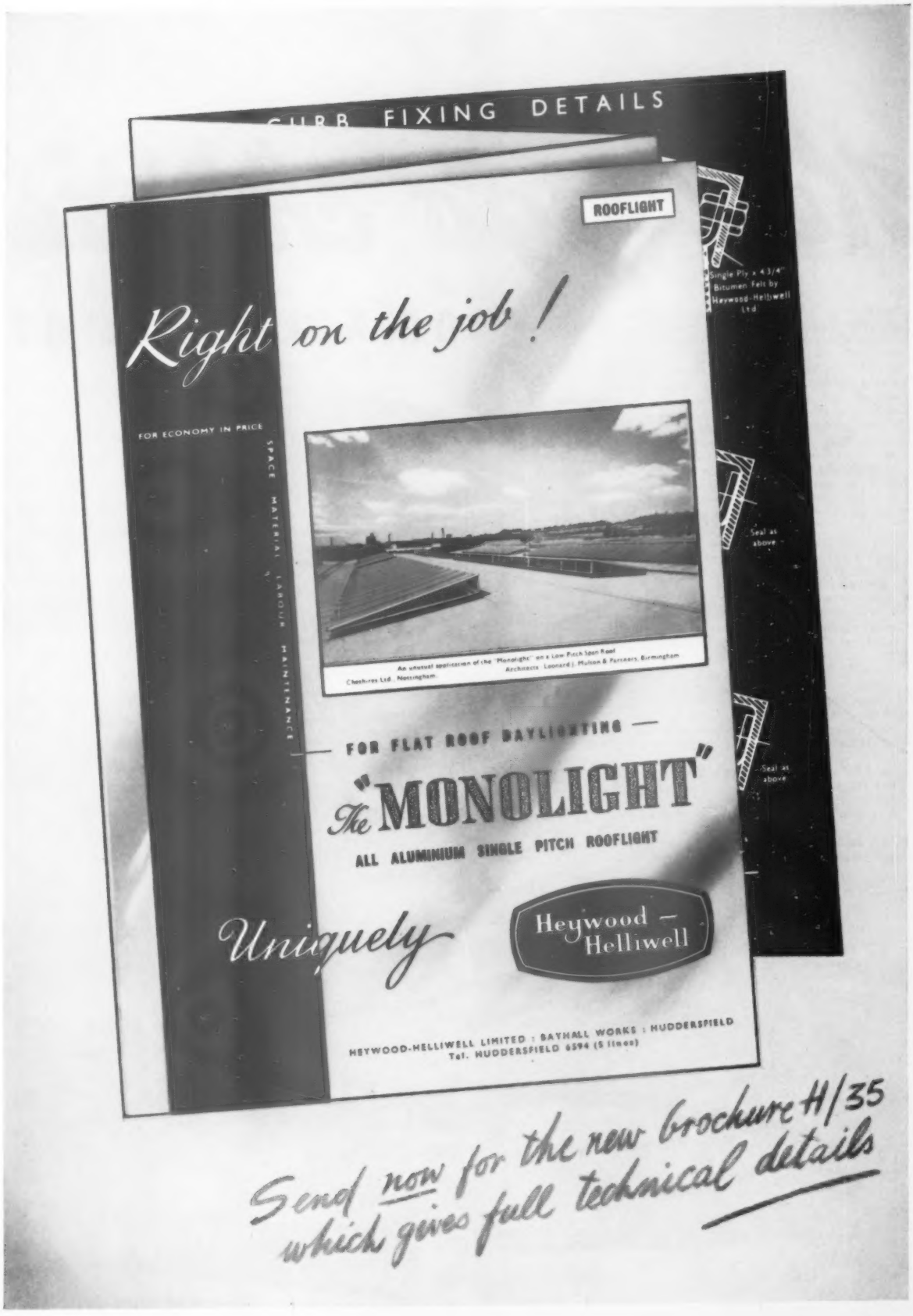
. . . it's necessary to think clearly. Think clearly about PERMANENT Sickness and Accident Insurance and you will see that it is essential to you, because your standard of living and that of your family depends on your income. Your income depends on *you*. If you suffered an illness or accident and could not work, your income would suffer.
Can you afford to take this risk?

Write for full particulars.

PSI Permanent Sickness Insurance Co., Ltd.

'Permanent' Sickness and Accident Insurance cannot be cancelled on account of heavy claims. It is not expensive to insure your income.

3 CAVENDISH SQUARE, LONDON, W.1
Telephone: LANgham 0341 (10 lines)


GUBB FIXING DETAILS
ROOFLIGHT
Right on the job!
FOR ECONOMY IN PRICE
SPACE MATERIAL LABOUR MAINTENANCE
An unusual application of the "Monolight" on a Low Pitch Span Roof
Cheshires Ltd. Nottingham. Architects: Leonard J. Multon & Partners, Birmingham
FOR FLAT ROOF DAYLIGHTING —
The "MONOLIGHT"
ALL ALUMINIUM SINGLE PITCH ROOFLIGHT
Uniquely
Heywood — Helliwell
HEYWOOD-HELLIWELL LIMITED : BAYHALL WORKS : HUDDERSFIELD
Tel. HUDDERSFIELD 6594 (5 lines)
Single Ply x 4.3/4" Bitumen Felt by Heywood-Helliwell Ltd
Seal as above
Seal as above
Send now for the new brochure H/35
which gives full technical details

Kellogg's choose

—FOR A VARIETY OF

ISSUED BY THE NATIONAL COAL BOARD

COAL

GOOD REASONS

Hot sunshine and golden grain, harvested at the peak of perfection—that's Kellogg's, the name that has brightened the breakfast tables in scores of millions of homes on both sides of the Atlantic.

The men who have so successfully changed the staid eating habits of nations are demonstrably men of both vision and sound judgment—two qualities which guide and control every long-term decision they make. Take fuel, for example. When the choice of fuels was examined, Kellogg's voted for coal. Why? Because—among many other good reasons—they knew that coal provides all the steam power they need at the lowest cost; because coal—mechanically stoked—is smokeless; and because British coalfields can supply all the coal that industry will need both now and in the foreseeable future.

When the time comes for you to make a decision on fuel, remember Kellogg's. Coal has helped them to create a mouth-watering success. It could well heap your own plate with the same golden sunshine.

PROGRESSIVE INDUSTRY IS GOING FORWARD ON

COAL

Coal into energy at Kellogg's Stretford Factory

Mr. E. Tomlinson, Plant Engineer, comments:

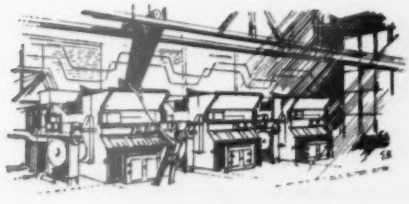
"Our processing plant operates continuously every week from Sunday night until Saturday morning, with an average load of 45,000 lbs. an hour, and intermittent peaks of up to 50,000 lbs. an hour. We have three water tube boilers, all operating on coal. Normal operation is with the largest boiler, fitted with an economiser, which maintains an efficiency of 83%, and one small boiler, without economiser, with an efficiency of 71%. The other small boiler is maintained as a stand-by; this is completely filled with treated water to prohibit corrosion and is available for immediate firing.

The original installation at Stretford was completed in 1937 when two water tube boilers were installed, both fired by chain grate stokers. Each boiler was designed to generate 17,000 lbs. of steam per hour, which was sufficient for operation of the plant.

In 1946 began a period of expansion and very soon both boilers were steaming continuously to provide sufficient steam for processing the growing output of various breakfast cereals. In 1950 a further water tube boiler was installed and, guided by the trouble-free service of the other two boilers, this unit was also fitted with a chain grate stoker for coal firing. Anticipating the Clean Air Act, we arranged to have grit arresters fitted to the new boiler and the two original boilers. Such was the growing demand for steam that the largest boiler was supplying steam to process before the official commissioning trials had taken place. This boiler was rated at 40,000 lbs. per hour and has been in continuous operation ever since, being shut down only for our annual holiday period when it is thoroughly cleaned and inspected.

We expanded again in 1954 and when further modernisation plans were considered we found that the two original boilers could be rebuilt to meet modern demands. Today all three boilers continue to give us a first-class service.

Our decision to burn coal is based on the extreme reliability of the coal handling and firing equipment, together with the economic fuel cost."

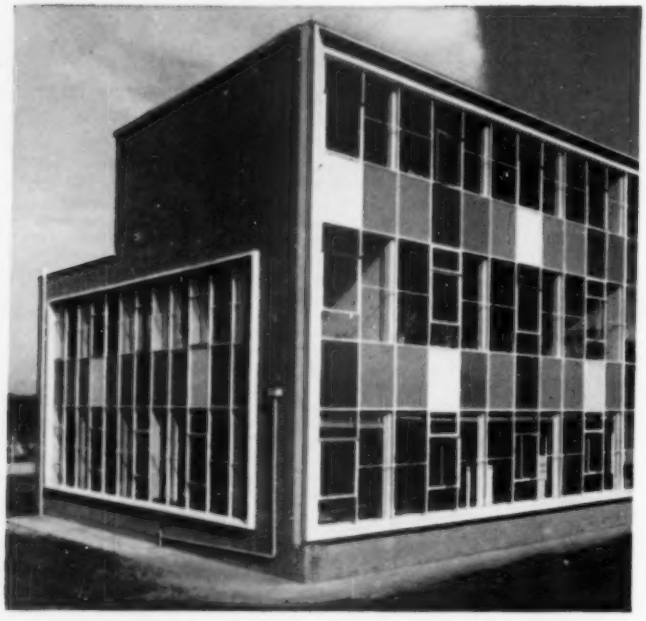


Here are some key facts and figures about the consumption of coal at Kellogg's:

Boilers: . . . . . 3 water tube
Method of firing: . . . . . chain grate stokers
Boiler efficiency: 80%
Max. steam rating: . . . . . 74,000 lbs/hr
Steam pressure: . . . . . 165 p.s.i.
Steam temperature: . . . . . 375° F
Annual fuel consumption: . . . 13,500 tons of coal

Curran SEAPORCLAD | PANEL TYPE No. 7

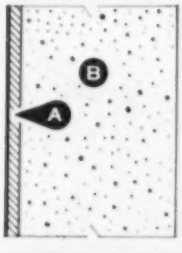
steel vitreous enamelled infill panels



THE NEW CYNTWELL SCHOOL, CARDIFF

All panelling used is Seaporclad Type No. 7—a modified version of Type No. 5. It consists of a flat vitreous enamelled steel sheet, finished in full gloss and bonded to ⅜" Asbestolux, without the back-up sheet of electro-galvanized steel used in Type 5. The panel edges are sealed all round with P.V.C. tape. Total Surface Area: 1228.43 sq. ft.
Architects: City Architects Department, Cardiff.
Contractors: John Laing & Sons Ltd.
Curtain Walling: John Williams of Cardiff Ltd.

SEAPORCLAD Infill Panel Type No. 7 (lined with Asbestolux) which has been used to clad the new Cyntwell School, Cardiff, is one of a wide range of infill and facing panels manufactured by Edward Curran Engineering Ltd. These panels provide permanent colour and excellent insulation. They are light and versatile in use and quickly assembled. **COMPOSITION:** Seaporclad is an insulated vitreous enamelled steel infill panel of sandwich construction, and is made to your own specification in compliance with standards laid down by the Vitreous Enamel Development Council. **SIZES:** Panels are available in any size up to 8′ 0″ × 4′ 0″—recommended maximum 6′ 0″ × 4′ 0″. **THERMAL INSULATION:** Cores may be of Aluminium, Asbestos, Paper Honeycomb, Fibreglass, Foamglas, etc. **COLOURS:** A choice of almost any colour from the British Standard 2660 101 Range. **FINISHES:** Full gloss, semi-matt and matt, also made to specified textures. **WEATHER RESISTANCE:** The finish is a true glass surface fired at 860°C on steel. It is permanent, will not fade and is highly resistant to weathering and chemical attack.



A 16 S.W.G. vitreous enamelled face
B Asbestolux

The face is a flat vitreous enamelled 16-gauge steel sheet, bonded with neoprene adhesive to an Asbestolux or asbestos board, ⅜", ½" or ¾" thick. Panel edges are sealed all round with P.V.C. tape.

Panel thickness	7/16 in.	9/16 in.	11/16 in.
Core thickness	⅜ in.	½ in.	¾ in.
Weight per sq. ft.	3 lb. 11¾ oz.	4 lb. 1 oz.	4 lb. 11½ oz.
'U' Value	·619	·503	·422

Write for technical information leaflet to:–
Architectural Division,
EDWARD CURRAN ENGINEERING LTD. CARDIFF
Telephone Cardiff 33644
Telegrams Cartridge, Cardiff
Holders of the sole manufacturing rights in the British Isles
Members of the Vitreous Enamel Development Council

Seaporclad Infill Panels are also being manufactured and used in Australia, Austria, Belgium, Brazil, Canada, Chile, Denmark, France, Germany, Holland, Italy, Japan, Luxembourg, New Zealand, Norway, South Africa, Spain, Sweden, Switzerland, Turkey, United States of America.

A PRODUCT OF THE CURRAN ORGANIZATION

I·C·I CHOSE

'Aristocrat' —the door of dignity and dependability

FOR THEIR NEW OFFICE BLOCK AT BILLINGHAM, CO. DURHAM

Main Contractors: John Laing & Son Ltd.

Hundreds of Hills 'Aristocrat' flush doors lend additional harmony and grace to this attractively spacious building. These fine doors in a wide range of veneers and matching edge strips, with the exclusive Hills Kreibord core, add dignity to any major project. They are manufactured in the dimensions and veneers to your specification.

Your important project deserves Hills 'Aristocrat' flush doors.

Photographs by courtesy of I.C.I.

Hills

ARISTOCRAT

FLUSH DOORS

For more information write to.—

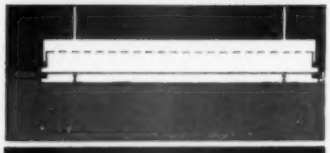
F. HILLS & SONS LIMITED NORTON ROAD STOCKTON-ON-TEES • Telephone: 67141

LONDON OFFICE: WINDSOR HOUSE KINGSWAY LONDON WC2 • Telephone: CHAncery 9251

Telex in operation at both offices.

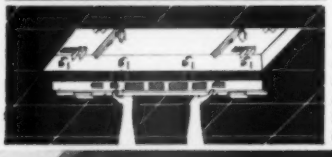
P4605

lateral adjustment using special slotted plates (see small illustration) allows pre-wiring of ceiling



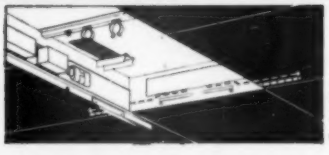
vertical adjustment of slim 1" trim ensures perfect joint with ceiling

new modular troffers streamline false ceiling lighting installation



control gear trays attached **after** *installation allowing single-handed fitting – hinged for easy maintenance*

atlas modulite



fits all types of ceiling and suspends from either true or false ceiling

Ease of installation, complete flexibility and big savings in installation costs . . . these are the features which make the redesigned Atlas 'Modulite' recessed troffer fittings a *must* for modular ceilings today. Features of the redesigned modulite range include: hidden spring clips providing positive lock on diffusers and simplifying removal; 2, 4, 6 or 8 ft lengths on a 2 ft module; open-ended versions for continuous mounting; alternative suspension for true or false ceilings; choice of three diffusers – translucent 'Perspex', interlocking vynil sections and shallow plastic louvre.

Atlas Lighting Limited, Thorn House, Upper St. Martin's Lane, London WC2

DTV

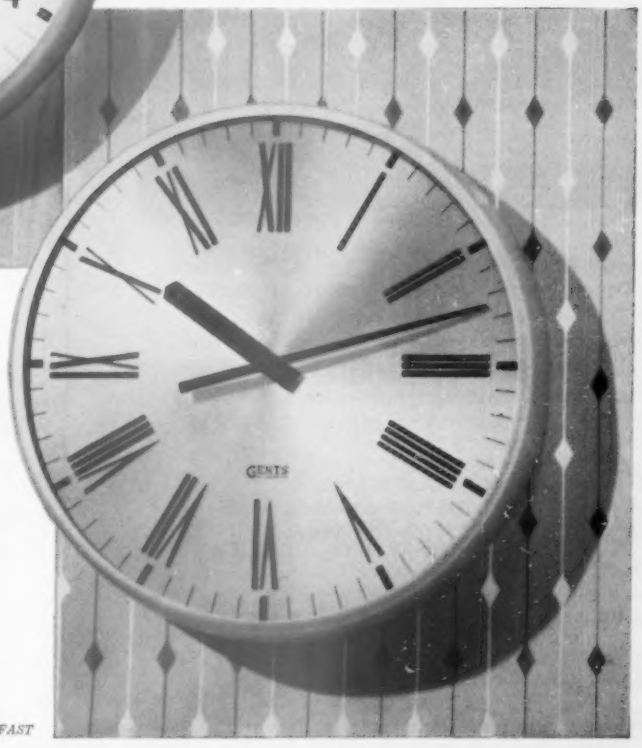
Maximum legibility and good taste are combined in the Gents wall clocks shown here.

Styled by a leading industrial designer they provide a choice of standard models which fit happily into present-day surroundings and décor.

These and others in the extensive Gents range have been selected by the Council of Industrial Design for inclusion in Design Index.

All are available for operating either on A.C. Mains or as part of a Master Clock System.

In every way...Right!



May we send you literature?

GENTS
OF LEICESTER

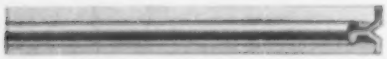
ELECTRIC CLOCKS

GENT & COMPANY LIMITED,
Faraday Works, Leicester. Telephone: 36151

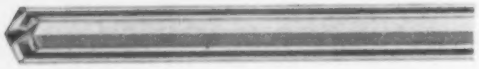
London Office & Showroom:
47, Victoria Street, S.W.1. Telephone: ABBey 6888

Also at: BIRMINGHAM. BRISTOL. EDINBURGH. GLASGOW. NEWCASTLE. BELFAST

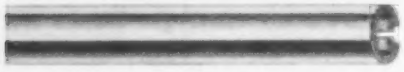
for SERVICE...



SELECTION...



and QUALITY...



IN EXTRUSIONS IN BRASS, BRONZE, COPPER

NICKEL-SILVER AND ALUMINIUM

ASK

McKECHNIE

BROTHERS LIMITED

McKechnie can satisfy your every production need *immediately*—from a stock of over 20,000 different dies. For extruded sections in brass, bronze, nickel-silver, aluminium or copper; for straight lengths or coils for high speed turning, McKechnie are the choice of Industry throughout the world.

Write now for technical advice or literature.

McKECHNIE BROTHERS LIMITED

14 Berkeley Street, London, W.1. Telephone: Hyde Park 9841 7
Metal Works: Middlemore Lane, Aldridge, Staffs.
Telephone: ALDridge 53321.
Other Factories at Widnes, London, South Africa, New Zealand.
Branch Offices at London, Manchester, Leeds, Gloucester, Newcastle-upon-Tyne, Glasgow (Agents: Hood & Co.), Paris.

Is this *YOUR* problem?

...or can we help.

Today, as never before, industry has to face the challenge—can it compete with foreign goods both at home and overseas.

To do so, every means of mass production must be exploited. And just as factories have to be designed and built around the new plant and machinery they are to house, office buildings must be tailor-made for the *administrative* machinery they are to accommodate. But as an architect, is this any concern of yours? We think it is———at any rate partly.

You see, the design you submit will make or mar the smooth working of a business if it is accepted. If it is not accepted, it is highly likely that the client will plague you with a whole string of modifications. Indeed, you may find yourself having to submit a completely new design. What a waste of your time!

HOW CAN WE HELP YOU AVOID THIS?

Shannon Consultants are experts in making offices work..... to do things businesses want them to do, economically and efficiently. If you were able to offer your client an additional service in the shape of Modern Office Planning, the inside workings and accommodation required could be planned and established before you ever set pencil to paper. By this means your client would have a highly functional administrative unit, and you would be saved the eternal discussions and wasted time that attend modifications and re-design.

The joy of this service is that it costs nothing, yet it can mean so much both to you and your client.

Office planning is a specialised subject. Furniture, partitioning, filing and all the paraphernalia of office life have to be considered in relation to the space available and the functions of departments and individuals within those departments.

Our full-colour brochure will give you a more detailed idea of what is entailed and the completely free planning service we offer. Simply write your name on the coupon below, attach it to your letterheading and a copy will be sent to you.

THE SHANNON LIMITED
72 Shannon Corner, New Malden, Surrey

Please send me a copy of your booklet on Office Planning.

Mark it for the attention of: _____

Shannon Systems

O & M TO BRITISH BUSINESS

SPENCERS

EXPANDED METAL

Manufactured in accordance with B.S.S. 405/1945, and B.S.S. 1221/1945 Part 'C'. It is supplied in diamond-shaped meshes ranging from $\frac{3}{16}$" to 3" across the short way of the mesh. The larger meshes are ideal for many forms of concrete reinforcement, whilst other uses for Expanded Metal include : open work flooring and stair treads, racks and shelves, fencing and partitions, grilles and screens. It is also available in the galvanized condition. Expanded Aluminium is supplied in a wide range of fancy colours, and is very suitable for decorative work of many kinds.

Also available-

- *Foundation Bolt Boxes,*
- *Brickwork Reinforcement,*

both made from Expanded Metal

THE
SPENCER WIRE
COMPANY LIMITED • WAKEFIELD
Telephone - WAKEFIELD 6111 (10 lines) - Telegrams - SPENCER WAKEFIELD TELEX
Telex no. 55160

DaD960AR

Milner

DESIGN Milner Steel Partitioning is unit constructed. It is easily transferable, sound and fire-resistant, and—above all—good looking.

CONSTRUCT The ready-made units of differing shapes and sizes can be combined in a great variety of ways. This enables our office partitioning to be "tailored" to suit particular requirements.

ADVISE We have experienced consultants ready at all times to offer you suggestions as to the planned partitioning of *your* office, bearing in mind the special factors involved.

ERECT Our own lorries bring the necessary units direct to the site. Highly skilled erection gangs assemble them quickly and efficiently.

Milner *Steel Equipment*
G. A. HARVEY & CO. (LONDON) LTD
Makers of office equipment and partitioning

Central Sales Office :
60 Rochester Row, London, S.W.1
Phone : VICtoria 5631

Branches at : **Birmingham, Bristol, Glasgow, Leeds, Liverpool & Manchester**

floors versus feet

As soon as the doors of a new building are open and the activity for which it was designed begins, the battle between floors and feet is on.

A messenger boy in a hurry slides madly round corners; second-formers indulge in an energetic game of fooball down corridors; busy nurses move swiftly up and down aisles between the beds.

Such heavy, unsympathetic traffic demands a floor covering which suffers these attacks good-humouredly and, in fact, will always be much kinder to the feet than the feet are to the floor.

The rubber flooring tiles designed and produced by Morris Rubber Industries Ltd. combine an inbred resistance to wear with an outward appearance which looks well in all kinds of surroundings. Available in many attractive colours and patterns, warm, hygienic quiet and resilient, Morris Rubber Tiles will satisfy the architects' need for hard-wearing floor covering wherever people work and live.

Please let us send you more detailed information about Morris Rubber Flooring and, when in London, see our exhibit at The Building Centre, 26 Store Street, W.C.1.

★
MORRIS
RUBBER INDUSTRIES LTD
HIGH ROAD • BYFLEET • SURREY
Telephone: BYFLEET 4351/3
Telegrams: RUBBER, BYFLEET

ACOUSTICS NOISE & BUILDINGS

P. H. Parkin & H. R. Humphreys

"This book will certainly be the standard authority on its subject for English readers."
—THE ARCHITECTURAL REVIEW.

"It will no doubt become the standard textbook..."
—ENGINEERING.

"A great contribution to the reduction of noise and the suffering and loss of efficiency it causes . . . Really interesting to read."—JOURNAL OF THE ROYAL SOCIETY OF ARTS.

"Without qualification this book is recommended to those who have problems to solve in the area of architectural acoustics."
—JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA.

With 13 photographs & 117 figures in the text. Price 70/-

Faber & Faber Ltd
24 Russell Square, London, W C 1

ABIX
STEEL PARTITIONS

ABIX Partitions are light, strong, fire-resisting and easy to erect. Manufactured in standard units for quick installation, easy removal or extension to existing screens. We should be pleased to help and advise on any partitioning problem.

WE ALSO SUPPLY DOUBLE SKIN PARTITIONING

WRITE FOR ILLUSTRATED CATALOGUE AR2

ABIX (METAL INDUSTRIES) LTD
Steel Equipment for Office & Factory
POOLE ROAD, WEST MOLESEY, SURREY
Telephone: Molesey 4361/3 Telegrams: Abix East Molesey
Also Manufacturers of: CLOTHES LOCKERS, ADJUSTABLE STEEL SHELVING AND STILLAGES AND PALLETS.

We invite you

to solve your furnishing fabric problems in the discreet and agreeable setting of our London or Dundee showrooms.

Plan in peace . . .

Here you can see the whole range of Old Glamis woven and printed fabrics and plan your schemes in peace with or without the help of trained staff, as you prefer. The Old Glamis range of furnishing fabrics is closely co-ordinated. Textured, patterned and plain fabrics are nicely balanced; planned to be used together. If you need exclusive fabrics for important contracts we can provide existing designs specially dyed in colours of your choice. We can make available a range of patterns not normally displayed or available for general sale on the home market. We can produce trial lengths interpreting your ideas, provide free patterns and large samples on approbation. Our London showrooms are at

Specially dyed . . .

Large Samples . . .

ROXBURGHE HOUSE, 287 REGENT STREET, W.1. *Telephone: Mayfair 1126/7* and our Dundee showrooms are at THE OLD GLAMIS FACTORY, DUNDEE, *(Telephone: Dundee 85263/4)*. If you cannot call at our showrooms we will gladly have the Old Glamis range brought to your office or studio.

OLD GLAMIS FABRICS

OLD GLAMIS FABRICS

BY APPOINTMENT
MAKERS OF OLD GLAMIS FURNISHING AND EMBROIDERY FABRICS TO
H. M. QUEEN ELIZABETH THE QUEEN MOTHER.
DONALD BROS. LTD.

The House of MARSHALL & SNELGROVE

Announce the inauguration of a new service for Contract Furnishing and Carpets

This service is backed by the vast resources of Marshall & Snelgrove, who have one of the most comprehensive Carpet and Soft Furnishing departments in the Country.

A staff of contract specialists is available to help in every possible way. Patterns, designs and suggestions are available at all times.

MARSHALL & SNELGROVE
OXFORD STREET, LONDON, W.1.
LANgham 3000

ENQUIRY FORM

I SHALL BE GLAD TO SEE YOUR REPRESENTATIVE

ON ..... TIME .....

NAME .....

PROFESSION .....

ADDRESS .....

.....

RACE

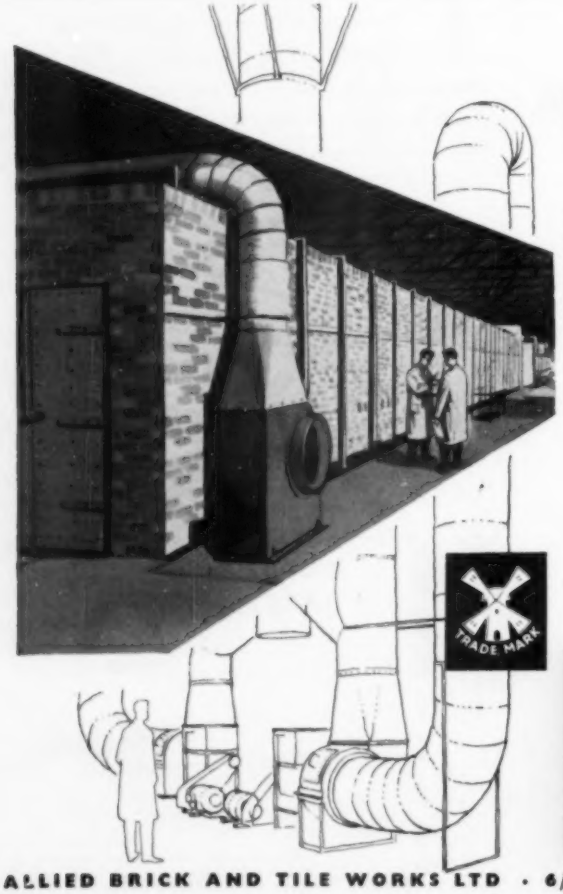
ba 3

strong, light,
comfortable,
hard-wearing

Race BA3 chairs—with or without arm-rests—have frames of die-cast aluminium alloy, moulded seats and padded backs; and there are special ferrules to make them silent. Race chairs are designed to give long years of faithful service without loosing their attractive look of newness. But in the unlikely event of damage, the component parts concerned can easily and cheaply be replaced

Write for full details of these and others in our complete range

Race furniture 22 Union Road Clapham sw4 Tel. Macaulay 2215/7



Everything under control . . .

Nothing is left to chance in the production of Windmill Quarry Tiles. Their rich colour and uniformity of shade and size are kept constant by the most up-to-date production methods. Fired in a scientifically controlled tunnel kiln, the high standard* of Windmill Tiles can be accurately maintained at competitive prices—another good reason for specifying them wherever economy, reliable wearing qualities and hygiene govern the choice of flooring.

Standard sizes are available in Red, Brown Fleck, Red Mingle and Buff Mingle. Also Ceramic Cills in above colours. Sizes 7½″, 8″, 9″, 10″ & 12″ in only ⅞″ thickness.

SAMPLES AND A BROCHURE WILL BE SENT ON REQUEST—or ask for a Representative to call.

* B.S.1286, 1945.

TRADE MARK

WINDMILL QUARRY TILES

ALLIED BRICK AND TILE WORKS LTD · 6/7 QUEEN STREET, LONDON, E.C.4 · CITY 2725

JAMES
make good
METAL WINDOWS

W. JAMES & CO. LTD.
Hythe Rd. Willesden Junction
LADbroke 6471 (6 lines) N.W.10

THE MERSEY DOCKS AND HARBOUR BOARD BUILDING

ST. MICHAEL'S MOUNT

CENTURIES BETWEEN . . .

— the problem was the same

Fourteen hundred years separate the building of these two landmarks—yet both faced the persistent problem of draughts. It was left to the modern techniques of the Chamberlin Weatherstripping Service to give to both these buildings the same draught-free comfort that is enjoyed in the best of modern homes. Just another example of the widely differing installations of Chamberlin Weatherstripping.

DATA SHEETS FOR ARCHITECTS AND BUILDERS

We invite Architects and Builders to send for the Chamberlin folder containing full technical data and dimensional drawings of Chamberlin equipment.

THE CHAMBERLIN SERVICE

CHAMBERLIN WEATHERSTRIPS LIMITED
34 ELM ROAD, CHESSINGTON, SURREY
Telephone: Lower Hook 1181

GD109

'METEOR'

'OVERDOR'

Sliding or Folding
Doors and Partitions
run more smoothly, far longer

on ELLARD **SLIDING DOOR GEAR**

'METEOR'

Ellard **'METEOR'** sliding door gear is designed for use with all types of internal straight sliding doors up to 120 lbs. each in weight.

'METEOR' sliding door gear is a recent addition to the 'ELLARD' range and incorporates the latest principles of modern design, ensuring many years of smooth, trouble-free running.

'OVERDOR'

Ellard **'OVERDOR'** garage door gear is suitable for both private and council lock-up garages, whether singly or in multiples, and is designed for doors from 6-7 ft. high and up to 200 lbs. in weight. The smooth 'up and over' action of 'Overdor' gear enables the door to be opened and closed with ease and speed.

A comprehensive range of Sliding and Folding Door Gear is available for any application, from a cabinet to an aircraft hangar door. Fully illustrated literature available on request.

ELLARD SLIDING DOOR GEARS LTD., (Desk 5/5) Works Road, Letchworth, Herts. **Tel: 613/4**
LONDON OFFICE: 5 New Bridge Street, Ludgate Circus, E.C.4. Tel: **CITy 4815**

EN-TOUT-CAS

By courtesy of Messrs. Attar Photographers, New York, U.S.A.
5,000 Metres Event, PAN AMERICAN GAMES CHICAGO, 1959 - "En - Tout - Cas" Track.

Hard Lawn Tennis Courts

Running Tracks

Football Grounds

Bowling Greens

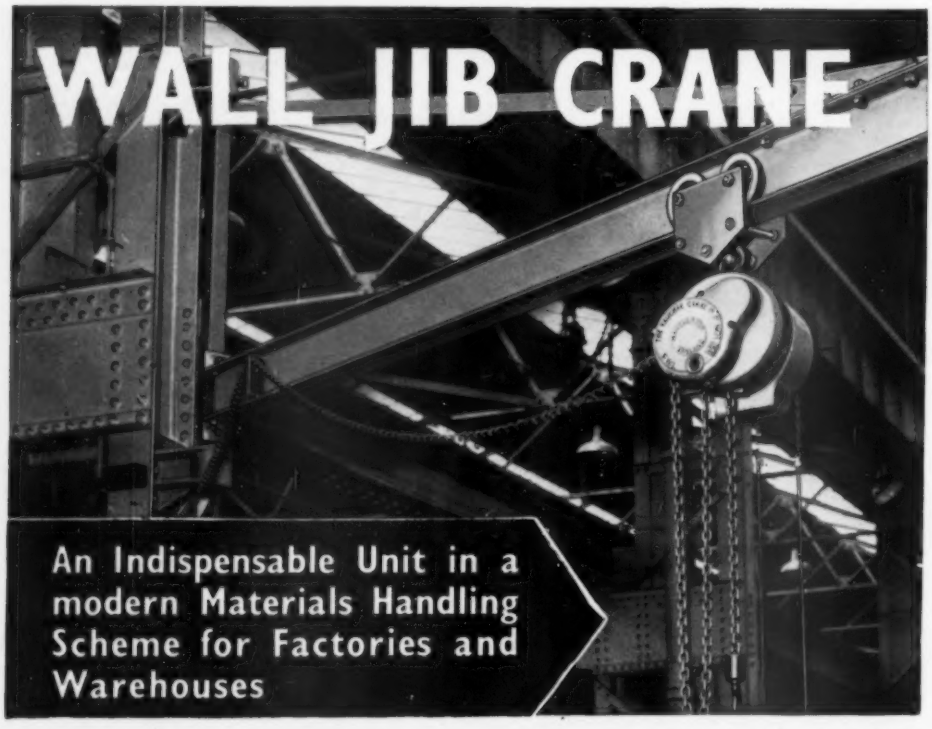
Cricket Pitches

Swimming Pools

Squash Rackets Courts

THE EN-TOUT-CAS CO. LTD.

SYSTON, LEICESTER (SYSTON 3322-7) London Office: Harrods (4th Floor) Knightsbridge, S.W.1



ONE OF MANY

Vaughan

LIFTING AND HANDLING PRODUCTS WHICH INCLUDE

OVERHEAD TRAVELLING CRANES
(UP TO 200 TONS)

HOIST BLOCKS

RUNWAYS

TELPHERS

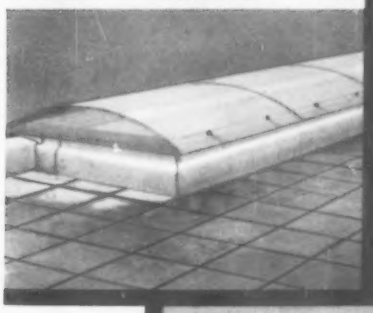
SPECIALISED CONTROLS

THE **VAUGHAN** CRANE CO., LTD. MANCHESTER 12

TELEPHONE: EAST 2771

COX

DOMES for the Princess Margaret Hospital Swindon



Purpose made continuous barrel roof lights with full vision fabricated ends. This is the latest Cox roof light, specially designed for the Princess Margaret Hospital.

Standard rectangular Cox Domes

Standard circular Cox Domes

Architects: Powell & Moya, F./F.R.I.B.A in association with W. J. Jobson (Regional Architect, Oxford Regional Hospital Board).

Main Contractors: W. H. Chivers & Sons Ltd.

COX Domes for Added Light.

Virtually unbreakable, these roof lights are available in circular, square or rectangular shapes in either clear "Perspex" (which has a light transmission of 92 per cent), or in diffused opal for privacy and anti-glare.

Williaam J. COX (SALES) Ltd.

"PERSPEX" FABRICATORS AND SHAPERS
(A.I.D. approved No. 3676/42)

Tring, Hertfordshire Tel.: Tring 3286/7/8

yesterday's craft
tomorrow's design

SCULPTURA

THE LILLESHALL COMPANY · OAKENGATES
SHROPSHIRE
121 VICTORIA STREET · VICTORIA 9992

Stall Urinal
Marquess of Queensberry MSIA c 1960
Fountain of Ceres Aranjuez c 1794

ANNOUNCING

The successful launching of the

WEL GARADOR

The NEW aluminium overhead garage door.

Designed to give featherlight operation easy installation and long life

NO SIDEWALL OR ROOF FIXINGS

Write for full details to

WESTLAND ENGINEERS LTD

YEOVIL, SOMERSET. TELEPHONE: YEOVIL 1109.

EX ACTIS
PROBEMUS

Roadway, Ramp and Retaining Walls—
Aspro-Nicholas Ltd · New factory · Slough
Architects: J. Douglas Mathews & Partners

REINFORCED CONCRETE

needs no introduction

TO THE ARCHITECT

We do!

Not that we are unknown, but not known widely enough. As designers of reinforced concrete structures, we claim to know our job. As suppliers of reinforcement, we provide a service with which the most exacting client would not quarrel.
The work we have done speaks for itself so let us be judged by our works.

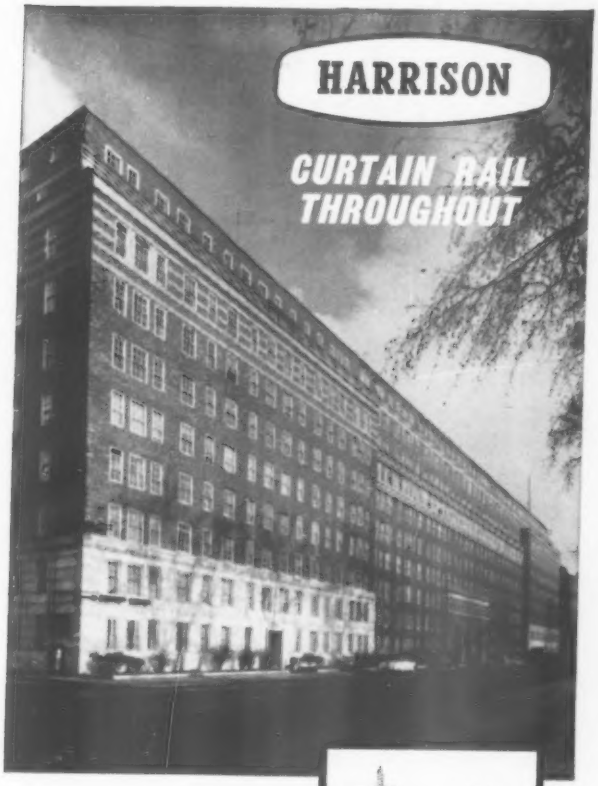
THE SPENCER WIRE CO (DEVELOPMENTS) LTD

Reinforced Concrete Engineers

53, VICTORIA ST, LONDON, S.W.1

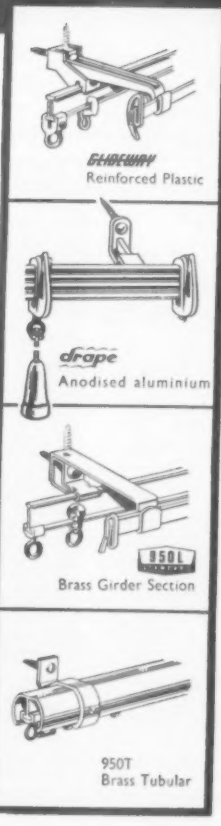
Telephone
ABBey 6373-5

Da960AR



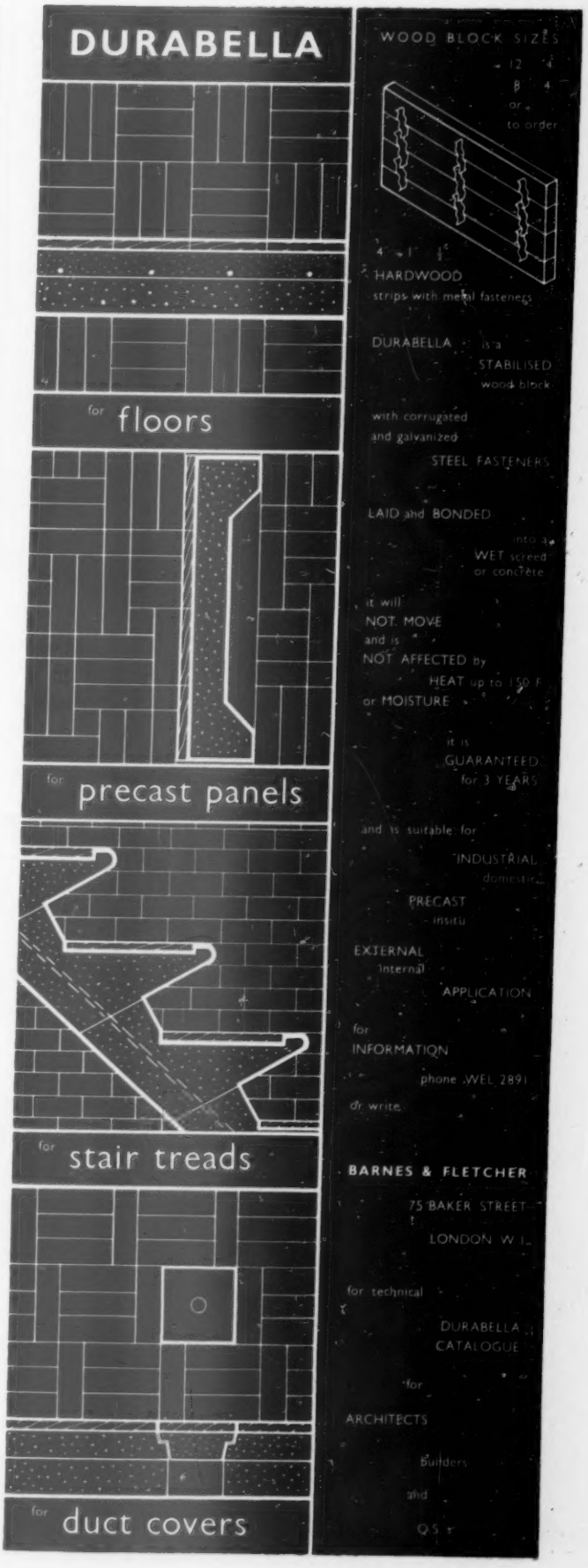
For this contract at Dolphin Square, London, Harrison Curtain Rails were specified exclusively. An approximate total of 75,000 ft. of 950L standard Brass Rail was supplied. Harrison Curtain Rails are extensively used in Hospitals, Theatres, Libraries, Restaurants, Hotels, Flats, etc. The range covers Brass Girder Section, Aluminium and Reinforced Plastic, special rails for Cubicles, Stages and Hospitals. Proved in service, their smooth efficiency consolidates your reputation.

Harrison (Birmingham) Ltd., P.O. Box 233. Bradford Street Works, Birmingham 12.



CURTAINS HANG BETTER

THE HARRISON WAY



PARKER-KNOLL
comfort
at special contract prices

THE 'NEW MENTON'. Here is a splendid example of traditional Parker-Knoll comfort and quality, allied to a design as up to date as the morning's news. From £24.15.0 to £29.10.0 according to cover.

Those responsible for the interior decoration and furnishing of hotels, restaurants, clubs, hospitals, government departments, etc., will be glad to know that Parker-Knoll chairs and settees are frequently available at special contract prices.

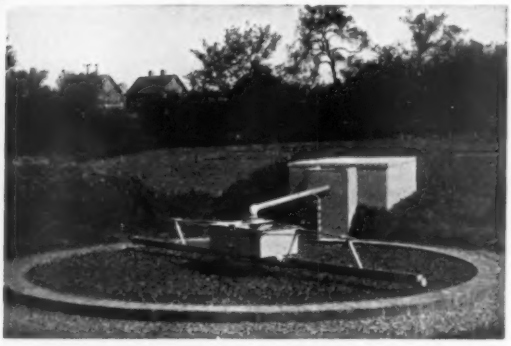
PARKER-KNOLL

Please write for details to:
PARKER-KNOLL LTD., CONTRACT DEPT., HIGH WYCOMBE, BUCKS.
Showrooms: LONDON: 234 Tottenham Court Rd, W.1. MANCHESTER: 33 King St.
BRISTOL: 35 Park Street. BIRMINGHAM: 43 Temple Street.
HIGH WYCOMBE: The Courtyard, Frogmoor.

CVS-464

TB LTD

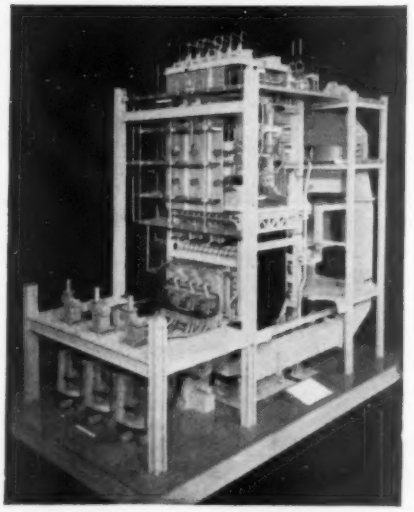
SEWAGE PURIFICATION
for Country Houses



Installation for a Housing Scheme

TUKE & BELL LTD
1, Lincoln's Inn Fields,
London, W.C.2.

Works: Lichfield, Staffs.



Exhibition model of High Head Boiler to a scale of ½" to 1 ft. Made to the order of Messrs. Babcock & Wilcox Ltd.

Fine craftsmanship . . .

Take a look at this complicated detail perfect scale model of a high head boiler made in our works at Northampton. Extreme accuracy and delicacy of touch and painstaking care are needed to accomplish it. This is the standard of craftsmanship Engineers, Architects and Municipal Authorities have come to expect of Bassett-Lowke.

Executives and Purchasing Agents will be interested in our Brochure S.W.56. · Sent free on request

BASSETT-LOWKE LTD.
Head Office and Works: **NORTHAMPTON**
LONDON: 112 High Holborn, W.C.1. MANCHESTER: 28 Corporation Street

illustrated in this issue

MAX FACTOR Inc.
NEW OFFICE BUILDING
Architects: Farmer & Dark

We are proud to be associated with the erection of this building, part of a major factory re-building scheme providing 150,000 sq. ft. of factory space all entrusted to

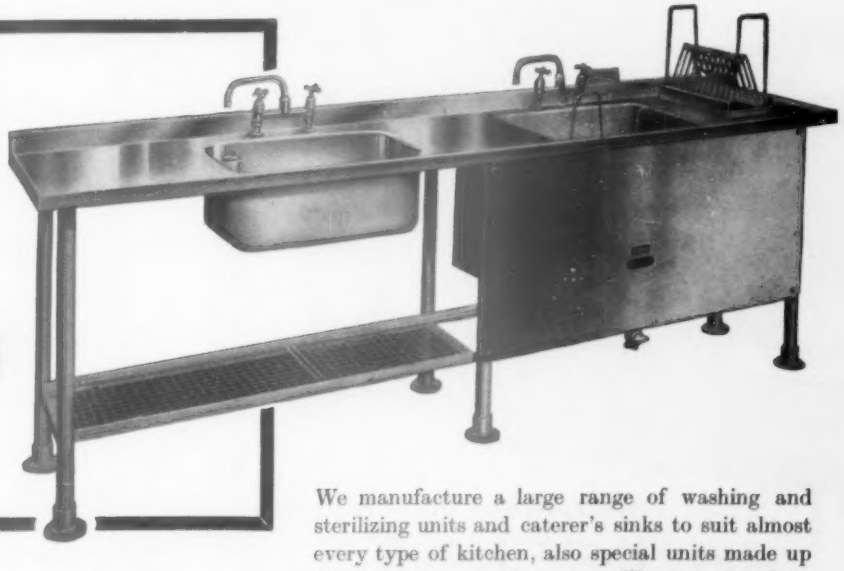
James Drewitt and Son Ltd

BUILDING CONTRACTORS

RINGWOOD ROAD, WEST HOWE, BOURNEMOUTH

Telephone: Northbourne 1144 (7 lines)

STAINLESS STEEL ELECTRIC STERILIZING SINKS



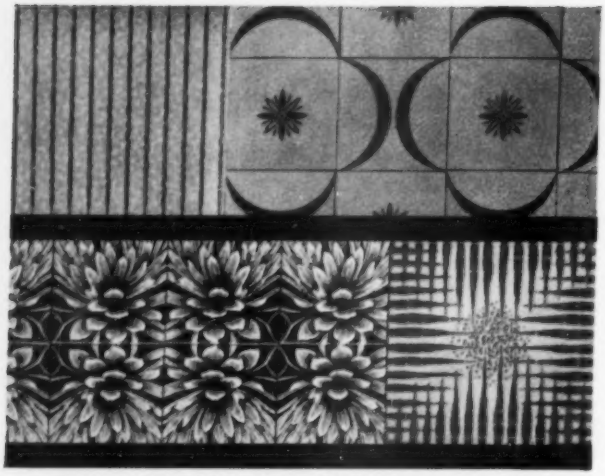
in sink or drainer units.
As illustrated or as
independent sterilizers

We manufacture a large range of washing and sterilizing units and caterer's sinks to suit almost every type of kitchen, also special units made up to your own requirements. We are, therefore, able to meet your demands no matter what type of unit you may need. (Sterilizing sinks can also be made for steam or gas heating.)

PLAND
REG. TRADE MARK

THE STAINLESS STEEL SINK CO. LTD.

Head Office: RING ROAD, LOWER WORTLEY, LEEDS 12. *Phone:* Leeds 638711/2/3
London Office: 14, GREAT PETER STREET, LONDON, S.W.1. *Phone:* ABBey 1575



TILES THAT CREATE IDEAS

MALKIN
screen printed tiles

This exciting new range of Malkin screen printed tiles is designed to give imaginative inspiration for wall decoration. Write for our illustrated leaflet and see the full range for yourself.

THE MALKIN TILES (BURSLEM) LIMITED

Burslem Stoke-on-Trent Telephone Stoke-on-Trent 87287
Members of the Glazed and Floor Tile Manufacturers Association

1493 ®

designs by S.L.R.

Specialists in Purpose made designs, Modifications and Lighting Schemes.
Catalogue of Standard Designs on request.

S.L.R. ELECTRIC Ltd
WELBECK WORKS, WELBECK ROAD
SOUTH HARROW, MIDDLESEX
Telephone: BYRon 3273/4

We specialise in
LONG LENGTH SEATING
with Latex & Resilient Foam Cushioning

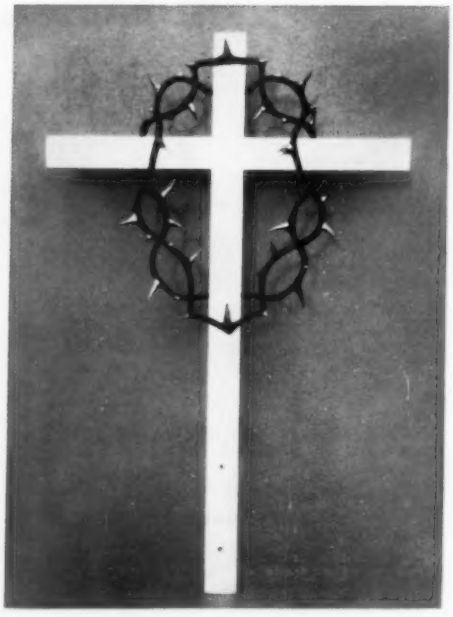
AS USED IN HOTELS, BARS & CLUBS, MUNICIPAL BUILDINGS, RECEPTION & WAITING ROOMS, SCHOOLS & LECTURE HALLS, WINDOW BAYS & ALCOVES, EXHIBITION STANDS.

Dunlopillo cushions and backrests supplied to any specification, uncovered or covered and ready for installation on site.

MAY WE SEND YOU FULL DETAILS?

LATEX UPHOLSTERY LIMITED
THE LEADING SPECIALISTS
41, Lonsdale Road, LONDON, W.11. Tel. BAYswater 6262-5

ARCHITECTURAL



ARCHITECTS: GILLESPIE, KIDD & COIA

• METALWORK

ALUMINIUM CROSS WITH "CROWN OF THORNS" IN WROUGHT COPPER

CHARLES HENSHAW & SONS, LTD.
RUSSELL ROAD EDINBURGH

R.I.W. 110A DAMP RESISTING PAINT...

The structural steelwork in the 7-storey City Wall House (London E.C.2) was protected against damp and corrosion with R.I.W. 110A.

...PREVENTS RUST ON STEELWORK PERMANENTLY

R.I.W. 110A is a cold-applied asphaltic barrier against rust and corrosion in steelwork

It is waterproof and vapour-proof... resistant to the fumes of acids and alkalis... does not impair adhesion of concrete nor affect the bond of steel.

For certain protection use R.I.W. 110A for ALL steelwork encased in concrete or other masonry, or in cavity wall constructions.
It can be brushed or sprayed.
Additionally, R.I.W. 110A is an ideal coating for conduits and pipes buried in the ground, and for metal lath.

Send for literature and details to:
R.I.W. Protective Products Co. Ltd.
325 Whitehorse Rd., Croydon, Surrey
Tel: Thornton Heath 6121/2

R.I.W.

The lowest priced Plastic Cistern

and the only unbreakable cistern too!

Success follows success with Fordham. After the Fordham 'Eterna' in White plastic—the 'Eterna' in black plastic. Here is the lowest price plastic cistern. The only one in rigid polythene and so the only really unbreakable cistern. It has all the well-proved Fordham advantages, too, resulting in dependable, ever-lasting, maintenance-free operation, whatever the water conditions. For low cost housing, the Fordham black 'Eterna' is supreme.

To B.S.S.	1125/1959
Width	19¼ ins.
Depth	12⅜ ins.
Projection	7 ins.
Weight complete	7 lbs.

Front lever of unique design.

Note for Stockists
18 'Eternas' occupy less than 2 square feet of floor space.

* *Write NOW for fully illustrated literature.*

Fordham *ETERNA*

FORDHAM PRESSINGS LTD., DUDLEY RD., WOLVERHAMPTON
Other Factories at Earlsfield (London), Hinckley (Leics), Sedgley (Staffs).
Makers of a complete range of Cisterns, Flushing Troughs, and other Sanitary Equipment.

ALPHABETICAL LIST TO ADVERTISERS

	PAGE
Abix (Metal Industries) Ltd.	cxxii
Adamsez Ltd.	lxxxix
Airscrew Co. & Jicwood Ltd.	lxxxviii
Alcan (U.K.) Ltd.	lvi, lvii
Allied Brick & Tile Works, Ltd.	cxxiv
Allom Heffer & Co. Ltd.	lxv
Alumin Building Components, Ltd.	x
Atlas Lighting Co. Ltd.	cxviii
Atlas Stone Co. Ltd.	cii
Barnes & Fletcher, Ltd.	cxxix
Bassett-Lowke, Ltd.	cxxx
Bilston Foundries, Ltd.	cix
Boote, T. & R., Ltd.	xv
Booth, John, & Sons (Bolton) Ltd.	cvi
Brady, G., & Co. Ltd.	cl
British Reinforced Concrete Engineering Co. Ltd.	cxxxvi
British Ceramic Tile Council	iii
British Sanitary Fireclay Association	xcix
Canadian Government (Timber)	cvii
Candy & Co. Ltd.	lxxxii
Cape Building Products, Ltd.	iv, v, xcviii
Chamberlin Weatherstrips, Ltd.	cxxv
Colvilles, Ltd.	xciii
Cordar, Ltd.	vii
Cox & Co. (Watford), Ltd.	lviii
Cox, Williaam J. (Sales), Ltd.	cxxvii
Crane, Ltd.	xxiii
Crittall, The Manufacturing Co. Ltd.	cx, cxi
Curran, Edward, Engineering, Ltd.	cxvi
Davies, A., & Co. (Shopfitters), Ltd.	xc
Dawnays, Ltd.	xci
Delta Metal Co. Ltd.	cxxxv
Demolition & Construction Co. Ltd.	xlix
Donald Brothers, Ltd.	cxxiii
Drewitt, James, & Son, Ltd.	cxxxi
Ellard Sliding Door Gears, Ltd.	cxxv
English Clock Systems, Ltd.	lxvii
English Joinery Manufacturers' Association (Incorporated)	ix
Engravers Guild	cxxxv
En Tout Cas Co. Ltd.	cxxvi
Evode, Ltd.	xxi
Faber & Faber, Ltd.	cxxii
Fibreglass, Ltd.	xxxi
Firth Vickers Stainless Steels, Ltd.	xlii
Fordhams Pressings, Ltd.	cxxxiii
Fox, Samuel, & Co. Ltd.	liii
Freeman, Joseph, Sons & Co. Ltd.	ii
General Electric Company Ltd.	xciv
Gent & Co. Ltd.	cxix
Goodlass, Wall & Co. Ltd.	lxxvii
Goodyear Tyre & Rubber Co. (Gt. Britain) Ltd.	lxxviii
Haden, G. N., & Sons Ltd.	vi
Hammond & Champness, Ltd.	xi
Harland Engineering Co. Ltd.	xxxviii
Harrisons (Birmingham), Ltd.	cxxix
Harrods, Ltd.	lxvi
Harvey, G. A., & Co. (London), Ltd.	cxxi
Hathernware (Ormskirk), Ltd.	cxxxiv
Hattersley (Ormskirk), Ltd.	xx
Heal & Son, Ltd.	lxviii
Helimatic, Ltd.	xiv
Henderson, P. C., Ltd.	lxxv
Henshaw, Charles, & Sons, Ltd.	cxxxii
Hermeseal Acoustics, Ltd.	xxxiii
Heywood-Helliwell, Ltd.	cxiii
Hills, F., & Sons, Ltd.	cxvii
Holcon, Ltd.	li
Hollowseal Steele Co.	cviii
Home Fittings (Great Britain), Ltd.	xcvii
Hope, Henry, & Sons, Ltd.	xli
Humasco, Ltd.	xliii
Ibstock Brick & Tile Co. Ltd.	lxxxv
Ideal Boilers & Radiators, Ltd.	lxxix, xviii
Imperial Aluminium Co. Ltd.	xliv
Imperial Chemical Industries, Ltd.	xxxiv
James, W., & Co. Ltd.	cxxv
Jenson & Nicholson, Ltd.	xxii
Kaye, Joseph, & Sons, Ltd.	xxxii
Lacrinoid Products, Ltd.	xxv
Latex Upholstery, Ltd.	cxxxii
Lilleshall Co. Ltd.	cxxvii
Limmer & Trinidad Lake Asphalte Co. Ltd.	lxx
Linoleum Manufacturers' Association	lxxii
Lumenated Ceilings, Ltd.	lxxii
Lytag, Ltd.	xcvi
Malkin Tiles (Burslem), Ltd.	cxxxii
Marshall & Snelgrove, Ltd.	cxxiii
Mellowes & Co. Ltd.	xxxvi
Morris, Alfred, Furnishings Co.	lxxi
Morris Rubber Industries, Ltd.	cxxii
Mowlem, John, & Co. Ltd.	lxiii
McKechnie Bros. Ltd.	cxx
National Coal Board	cxiv, cxv
Newalls Insulation Co. Ltd.	xlvi
Newman, William, & Sons, Ltd.	xii
Omnia Construction, Ltd.	liv
Overhead Doors (Gt. Britain), Ltd.	lxxxiv
Parker-Knoll, Ltd.	cxxx
Parnall, George, & Co. Ltd.	xix
Patent Glazing Conference, The	xxviii
Permanent Sickness Insurance Co.	cxii
Perring, John, Ltd.	lv
Pyrotenax, Ltd.	c
Quicktho Engineering, Ltd.	xxvii
Race, Ernest, Ltd.	cxxiv
Rawlplug Co. Ltd., The	xiii
Redpath Brown	xxx
Reyrolle, A., & Co. Ltd.	xxvi
Riley (I.C.) Products, Ltd.	xl, li
R.I.W. Protective Products, Ltd.	cxxxiii
Rotaflex (Gt. Britain), Ltd.	lxiv
Shanks & Co. Ltd.	xxxix
Shannon, Ltd., The	cxx
S.L.R. Electric, Ltd.	cxxxii
Sound Control, Ltd.	xlv
Spencer Wire (Developments), Ltd.	cxxviii
Spencer Wire Co. Ltd.	cxxi
Stramax Ceilings (G.B.), Ltd.	lxxxiii
Sterne, L., & Co. Ltd.	xxiv
Still, Wm., & Sons, Ltd.	lxxxi
Taylor Rustless Fittings, Ltd.	cxxxi
Taylor Woodrow (Arcon), Ltd.	xlvii
Templeton, James, & Co. Ltd.	cliii
Thermalite Ytong, Ltd.	lix
Thermodare (Great Britain), Ltd.	xlviii
Timber Development Association, Ltd.	lx, lxi, xcii
Troughton & Young (Lighting), Ltd.	lxii
Truscon, Ltd.	xxxv
Tuke & Bell, Ltd.	cxxx
U.A.M. Plastics, Ltd.	lxxiv
Vaughan Crane Co. Ltd.	cxxvi
Walker, Crosweller & Company Ltd.	lxxvi
Wall Paper Manufacturers, Ltd.	lxix
Wandsworth Electrical Manufacturing Co. Ltd., The	viii
Wardle, Bernard (Everflex), Ltd.	xcv
Weatherfoil Heating Systems, Ltd.	xxxvii
Westland Engineers, Ltd.	cxxviii
Wests Piling & Construction, Ltd.	cxxxiv
Williams & Williams, Ltd.	lxxxvi, lxxxvii
Williams, John, of Cardiff, Ltd.	xvi
Williamson, Jas., & Son, Ltd.	l
Winsorflor, Ltd.	lxxx
Wood, Edward, & Co. Ltd.	cv
Wright Anderson & Co. Ltd.	civ

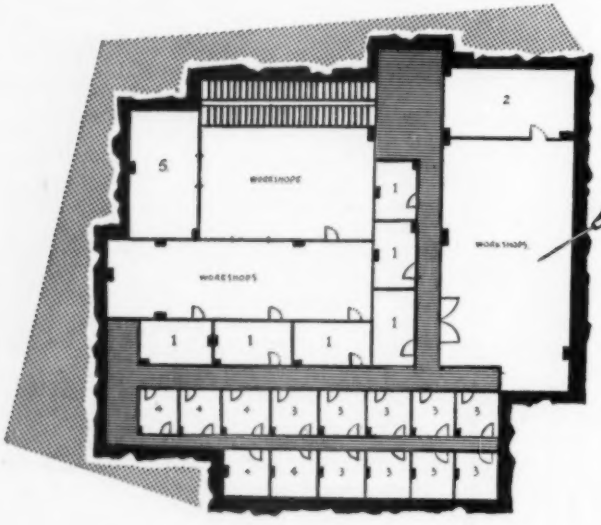
BUSH HOUSE
Broad Street
for Birmingham Corporation
Architects
Harry W. Weedon F.R.I.B.A. & Partners

Another prominent building attractively faced

with* HATHERNWARE *FAIENCE

Send for details to Dept. A.R. HATHERNWARE LTD. LOUGHBOROUGH. LEICS. Tel: Hathern 273/4.

dm HL 76



PLAN FOR STABILITY

WITH

WEST'S *SHELL* PILING

SYSTEM

The stability of West's Shell Piles is derived from a number of factors. Firstly, the pile is driven to the correct dynamic set for the bearing capacity required. Secondly, while the consolidating effect of the positively driven pile is retained, the outer shell being firmly embedded in the load-bearing stratum, there is no fatigue in the pile core, which is cast after driving is completed.

Please write for the latest publications describing this modern system to:

WEST'S PILING & CONSTRUCTION CO. LTD.
Foundation Specialists · Design and Construction in Reinforced Concrete
BATH ROAD · HARMONDSWORTH · MIDDLESEX · TEL.: SKYPORT 5222
Branches in London · Bristol · Birmingham · Manchester · Glasgow
Australasia: West's Shell Piling (A/sia) Pty. Ltd., Melbourne, Sydney, Adelaide & Wellington, N.Z.
Southern Africa: The Roberts Construction Co. Ltd., Johannesburg.
France: Compagnie Générale de Construction de Fours, Paris

A MEMBER OF WEST'S GROUP OF INDUSTRIES

A7

FIRST FOLD HERE

FOLD HERE

AR enquiry service

If you require catalogues and further information on building products, equipment and services referred to in the advertisements appearing in this issue of The Architectural Review please mark thus √ the relevant names given in the alphabetical index overleaf. Then detach this page and in the space overleaf type, or write in your name, address, profession or trade; fold the page so that the post-paid address is on the outside, and despatch.

All requests received will immediately be passed to the advertisers concerned.

Overseas readers, unfortunately, cannot take advantage of reply-paid postage; in the interest of time-saving we hope that they will return completed forms to us by air-mail.

Postage will be paid by Licensee

No postage Stamp necessary if posted in Great Britain or Northern Ireland

BUSINESS REPLY FOLDER
Licence No. S.W.1761

The ARCHITECTURAL REVIEW

9-13 Queen Anne's Gate

London, S.W.1.

ENGLAND

FOLD HERE

TUCK IN THIS END

Enquiry Service Form

alphabetical index to advertisers

	PAGE
☐ Abix (Metal Industries), Ltd. ...	cxxii
☐ Adamsez, Ltd.	lxxxix
☐ Airscrew Co. & Jicwood, Ltd. ...	lxxxviii
☐ Alcan (U.K.), Ltd.	lvi, lvii
☐ Allied Brick & Tile Works, Ltd.	cxxiv
☐ Allom Heffer & Co. Ltd.	lxv
☐ Alumin Building Components, Ltd.	x
☐ Atlas Lighting Co. Ltd.	cxviii
☐ Atlas Stone Co. Ltd.	cii
☐ Barnes & Fletcher, Ltd.	cxxix
☐ Bassett-Lowke, Ltd.	cxxx
☐ Bilston Foundries, Ltd.	cix
☐ Boote, T. & R., Ltd.	xv
☐ Booth, John, & Sons (Bolton), Ltd.	cvi
☐ Brady, G., & Co. Ltd.	ci
☐ British Reinforced Concrete Engineering Co. Ltd.	cxxxvi
☐ British Ceramic Tile Council ...	iii
☐ British Sanitary Fireclay Association	xcix
☐ Canadian Government (Timber)	cvii
☐ Candy & Co. Ltd....	lxxxii
☐ Cape Building Products, Ltd.	iv, v, xcviii
☐ Chamberlin Weatherstrips, Ltd.	cxxv
☐ Colvilles, Ltd.	xciii
☐ Cordar, Ltd.	vii
☐ Cox & Co. (Watford), Ltd. ...	lviii
☐ Cox, Williaam J. (Sales), Ltd. ...	cxxvii
☐ Crane, Ltd.	xxiii
☐ Crittall Manufacturing Co. Ltd., The	cx, cxi
☐ Curran, Edward, Engineering Ltd.	cxvi
☐ Davies, A., & Co. (Shopfitters), Ltd.	xc
☐ Dawnays, Ltd.	xci
☐ Delta Metal Co. Ltd.	cxxxv
☐ Demolition & Construction Co. Ltd.	xlix
☐ Donald Brothers, Ltd.	cxxiii
☐ Drewitt, James, & Son, Ltd. ...	cxxxi
☐ Ellard Sliding Door Gears, Ltd....	cxxv
☐ English Clock Systems, Ltd. ...	lxvii
☐ English Joinery Manufacturers' Association (Incorporated) ...	ix
☐ Engravers Guild	cxxxv
☐ En Tout Cas Co. Ltd.	cxxvi
☐ Evode, Ltd.	xxi
☐ Faber & Faber, Ltd.	cxxii
☐ Fibreglass, Ltd.	xxxi
☐ Firth Vickers Stainless Steels, Ltd.	xlii
☐ Fordhams Pressings, Ltd. ...	cxxxiii
☐ Fox, Samuel, & Co. Ltd.... ...	liii
☐ Freeman, Joseph, Sons & Co. Ltd.	ii
☐ General Electric Company Ltd. ...	xciv
☐ Gent & Co. Ltd.	cxix
☐ Goodlass, Wall & Co. Ltd. ...	lxxvii
☐ Goodyear Tyre & Rubber Co. (Gt. Britain), Ltd.	lxxviii
☐ Haden, G. N., & Sons, Ltd. ...	vi
☐ Hammond & Champness, Ltd. ...	xi
☐ Harland Engineering Co. Ltd. ...	xxxviii
☐ Harrisons (Birmingham), Ltd. ...	cxxix
☐ Harrods, Ltd.	lxvi
☐ Harvey, G. A., & Co. (London), Ltd.	cxxi
☐ Hathernware (Ormskirk), Ltd. ...	cxxxiv
☐ Hattersley (Ormskirk), Ltd. ...	xx
☐ Heal & Son, Ltd.	lxviii
☐ Helimatic, Ltd.	xiv
☐ Henderson, P. C., Ltd.	lxxv
☐ Henshaw, Charles, & Sons, Ltd.	cxxxii
☐ Hermeseal Acoustics, Ltd. ...	xxxiii
☐ Heywood-Helliwell, Ltd.... ...	cxiii
☐ Hills, F., & Sons, Ltd.	cxvii
☐ Holcon, Ltd.	li
☐ Hollowseal/Steele Co.	cviii
☐ Home Fittings (Great Britain), Ltd.	xcvii
☐ Hope, Henry, & Sons, Ltd. ...	xli
☐ Humasco, Ltd.	xliii
☐ Ibstock Brick & Tile Co. Ltd. ...	lxxxv
☐ Ideal Boilers & Radiators, Ltd.	lxxix, xviii
☐ Imperial Aluminium Co. Ltd. ...	xliv
☐ Imperial Chemical Industries, Ltd.	xxxiv
☐ James, W., & Co. Ltd.	cxxv
☐ Jenson & Nicholson, Ltd. ...	xxii
☐ Kaye, Joseph, & Sons, Ltd. ...	xxxii
☐ Lacrinoid Products, Ltd.... ...	xxv
☐ Latex Upholstery, Ltd.	cxxxii
☐ Lilleshall Co. Ltd....	cxxvii
☐ Limmer & Trinidad Lake Asphalte Co. Ltd.	lxx
☐ Linoleum Manufacturers' Association	lxxii
☐ Lumenated Ceilings, Ltd. ...	lxxii
☐ Lytag, Ltd.	xcvi
☐ Malkin Tiles (Burslem), Ltd. ...	cxxxii
☐ Marshall & Snelgrove, Ltd. ...	cxxiii
☐ Mellowes & Co. Ltd.	xxxvi
☐ Morris, Alfred, Furnishings Co. ...	lxxi
☐ Morris Rubber Industries, Ltd. ...	cxxii
☐ Mowlem, John, & Co. Ltd. ...	lxiii
☐ McKechnie Bros. Ltd.	cxx
☐ National Coal Board	cxiv, cxv
☐ Newalls Insulation Co. Ltd. ...	xlvi
☐ Newman, William, & Sons, Ltd.	xii
☐ Omnia Construction, Ltd. ...	liv
☐ Overhead Doors (Gt. Britain), Ltd.	lxxxiv
☐ Parker-Knoll, Ltd.	cxxx
☐ Parnall, George, & Co. Ltd. ...	xix
☐ Patent Glazing Conference, The...	xxviii
☐ Permanent Sickness Insurance Co.	cxii
☐ Perring, John, Ltd.	lv
☐ Pyrotenax, Ltd.	c
☐ Quicktho Engineering, Ltd. ...	xxvii
☐ Race, Ernest, Ltd.	cxxiv
☐ Rawlplug Co. Ltd., The	xiii
☐ Redpath Brown	xxx
☐ Reyrolle, A., & Co. Ltd.	xxvi
☐ Riley (I.C.) Products, Ltd. ...	xl, lii
☐ R.I.W. Protective Products, Ltd.	cxxxiii
☐ Rotaflex (Gt. Britain), Ltd. ...	lxiv
☐ Shanks & Co. Ltd.	xxxix
☐ Shannon, Ltd., The	cxx
☐ S.L.R. Electric, Ltd.	cxxxii
☐ Sound Control, Ltd.	xlv
☐ Spencer Wire (Developments), Ltd.	cxxviii
☐ Spencer Wire Co. Ltd.	cxxi
☐ Stramax Ceilings (G.B.), Ltd. ...	lxxxiii
☐ Sterne, L., & Co. Ltd.	xxiv
☐ Still, Wm., & Sons, Ltd.... ...	lxxxi
☐ Taylor Rustless Fittings, Ltd. ...	cxxxi
☐ Taylor Woodrow (Arcon), Ltd. ...	xlvii
☐ Templeton, James, & Co. Ltd. ...	ciii
☐ Thermalite Ytong, Ltd.	lix
☐ Thermodare (Great Britain), Ltd.	xlviii
☐ Timber Development Association, Ltd.	lx, lxi, xcii
☐ Troughton & Young (Lighting), Ltd.	lxii
☐ Truscon, Ltd.	xxxv
☐ Tuke & Bell, Ltd.	cxxx
☐ U.A.M. Plastics, Ltd.	lxxiv
☐ Vaughan Crane Co. Ltd.	cxxvi
☐ Walker, Crosweller & Company Ltd.	lxxvi
☐ Wall Paper Manufacturers, Ltd.	lxix
☐ Wandsworth Electrical Manufacturing Co. Ltd., The	viii
☐ Wardle, Bernard (Everflex), Ltd.	xcv
☐ Weatherfoil Heating Systems, Ltd.	xxxvii
☐ Westland Engineers, Ltd. ...	cxxviii
☐ West's Piling & Construction Ltd.	cxxxiv
☐ Williams & Williams, Ltd.	lxxxvi, lxxxvii
☐ Williams, John, of Cardiff, Ltd....	xvi
☐ Williamson, Jas., & Son, Ltd. ...	l
☐ Winsorflor, Ltd.	lxxx
☐ Wood, Edward, & Co. Ltd. ...	cv
☐ Wright Anderson & Co. Ltd. ...	civ

Write in block letters, or type, your name, profession and address below, and fold so that the post-paid address overleaf is on the outside.

NAME _____

PROFESSION _____

ADDRESS _____

_____

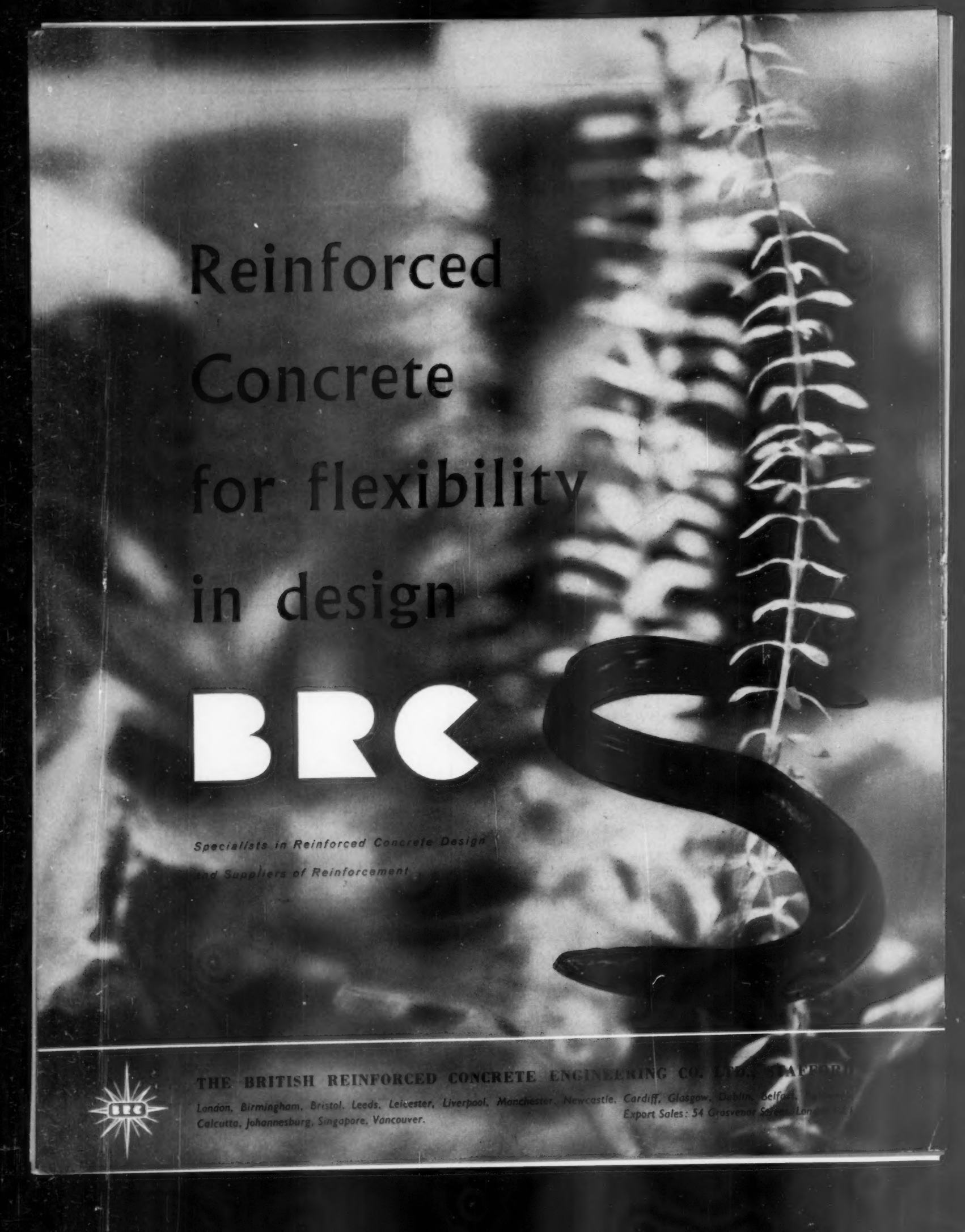
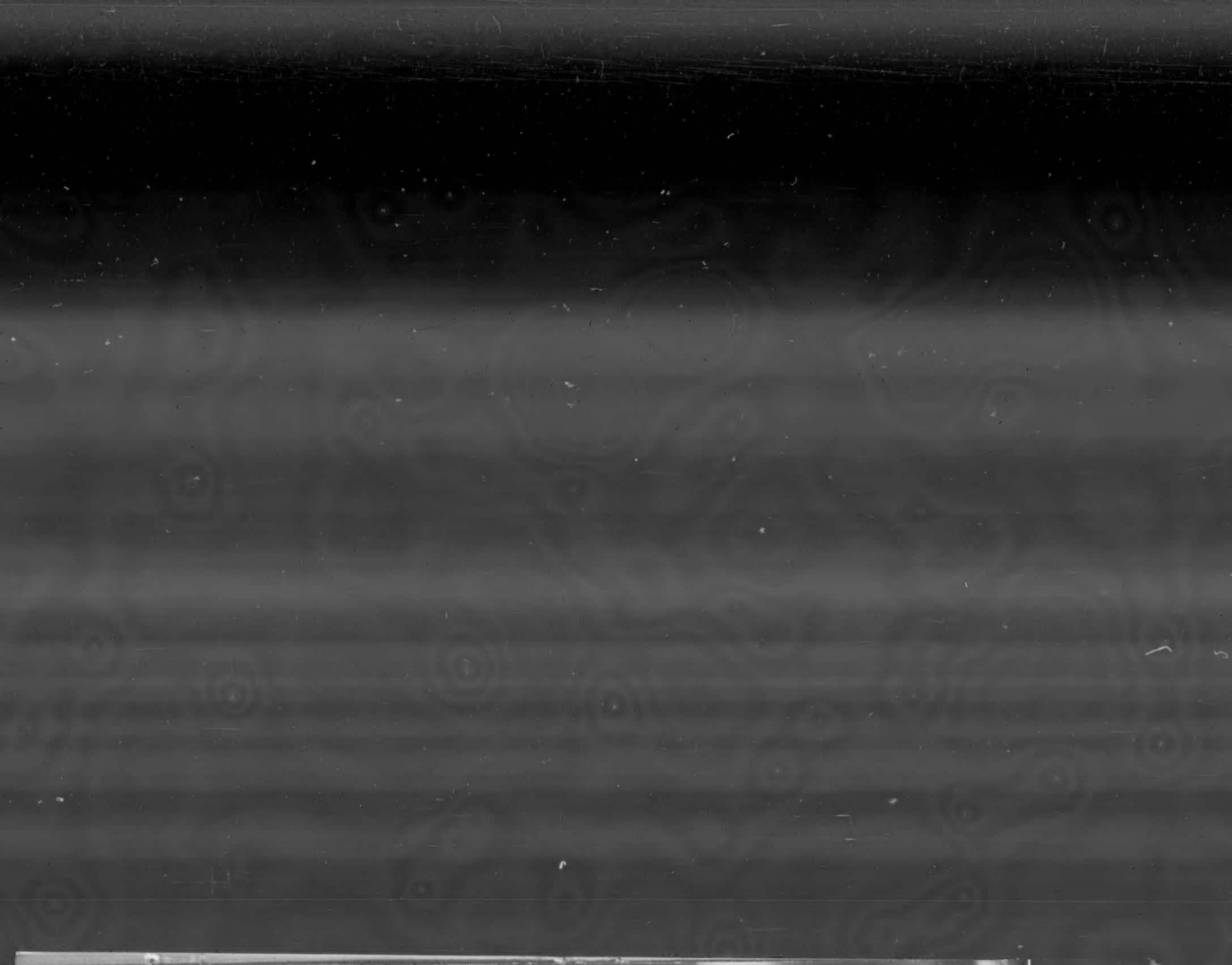
SEPTEMBER 1960

MOST IMPORTANT

There's
Beauty in Bronze

The Delta Metal Company Limited

Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames.
Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 23/26, Cursitor Street, London E.C.4.
Entered in the New York Post Office as Second Class Matter


Reinforced
Concrete
for flexibility
in design
BRC
Specialists in Reinforced Concrete Design
and Suppliers of Reinforcement
THE BRITISH REINFORCED CONCRETE ENGINEERING CO. LTD.
London, Birmingham, Bristol, Leeds, Leicester, Liverpool, Manchester, Newcastle, Cardiff, Glasgow, Dublin, Belfast,
Calcutta, Johannesburg, Singapore, Vancouver.
Export Sales: 54 Grosvenor Square, Lon